JULY | 1958

products finishing

Industry Thinking: Finishers Discuss Problems — Page 30

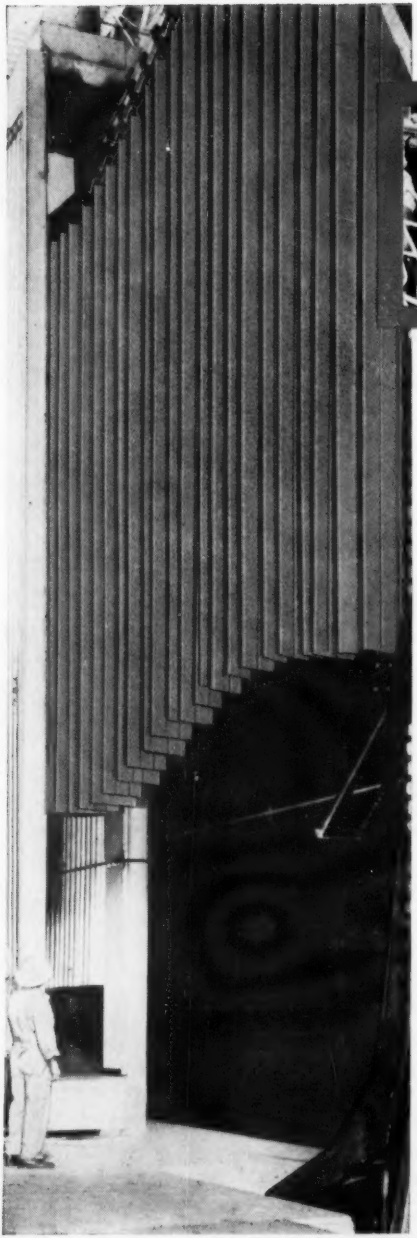
Plating Prevents Bolt Seizure — Page 38

RCA Automatic Spray Painting Setup — Page 52

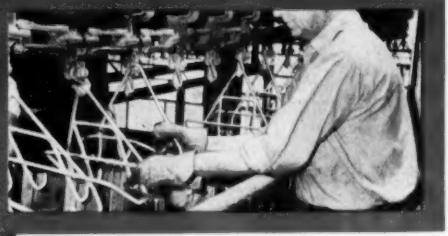
New Developments — Page 96

Table of Contents — Page 5

Finishes on metal products



Hooking panels on conveyor 30 feet above floor at start of finishing line.



World's biggest flow-coat problem . . . solved with Sherwin-Williams Kem® Enamel

How do you flow-coat steel roof deck panels up to 28½ feet high — without runs, sags or vapor wash?

Inland Steel Products Co., Milwaukee, Wisconsin, faced this problem with its Milcor Steel Roof Deck. Usual materials and methods created uneven film protection due to vapor from lower portions.

Sherwin-Williams flow-coat specialists helped Inland Products engineers solve this problem. Now Milcor Roof Deck is finished with a baked-on epoxy enamel primer that resists scuffing . . . reaches every crevice of deeply grooved panels to give a heavy continuous coating . . . at lower cost than dip-coating with cheaper material!

Investigate what Sherwin-Williams Technical Service can offer in meeting your product finishing problems. Call or write The Sherwin-Williams Co., General Industrial Division, Cleveland 1, Ohio. In Canada: 2875 Centre St., Montreal.

COVER THE EARTH

SHERWIN-WILLIAMS
INDUSTRIAL FINISHES

For more data circle 301 on Postpaid Card

Do you need better metal cleaners for these jobs?

All the tough jobs are covered by Oakite's booklet on *"Cleaning and preparing metal in aircraft production"*. Just check this list of contents for reminders of operations that give you trouble:

	SEE PAGES
☐ Cleaning aluminum (with or without etching)	2
☐ Preparing aluminum for welding	3
☐ ChromiCoating aluminum before painting	4
☐ Stripping paint from aluminum, steel	5, 9
☐ Barrel finishing aluminum, steel, copper	5, 9, 11
☐ Cleaning magnesium	6
☐ Cleaning steel; derusting and descaling	7
☐ Preventing rust	8
☐ One-operation preparation for painting	9
☐ CrysCoating steel before painting	10
☐ Cleaning copper and its alloys	11
☐ Controlling water in paint spray booths	12

OAKITE

In our 50th year.

FREE For your copy of this 16-page illustrated booklet, write Oakite Products, Inc., 20 Rector St., New York 6, N. Y.

Technical Service Representatives in Principal Cities of U. S. and Canada

For more data circle 304 on Postpaid Card

NOW'S THE TIME... HERE'S THE PLACE
to find the tumbling abrasive you need

The big Norton Sample Processing Department solves your finishing problems with a wide variety of latest types of tumbling equipment — plus Norton ALUNDUM* TUMBLEX* abrasives, made in four different types and many different sizes.

One leading aircraft parts manufacturing company reports saving over $90,000 yearly by shifting from hand-finishing to barrel finishing with Norton TUMBLEX abrasives.

There's one sure way for you, too, to get these cost-cutting, product-improving "Touch of Gold" advantages. Your metal parts can range from tiny needles to hefty forgings . . . may be simple or complicated, hard metals or soft . . . may require deburring, descaling, better color and closer finish. Just send sample parts to our Sample Processing Department. They'll be returned to you completely finished to requirements, with a detailed report. Or, next time you're in our area, drop in and learn how your finishing can be improved.

NORTON COMPANY, General Offices, Worcester 6, Mass. Plants and distributors all around the world.

*Trade-Marks Reg. U. S. Pat. Off. and Foreign Countries

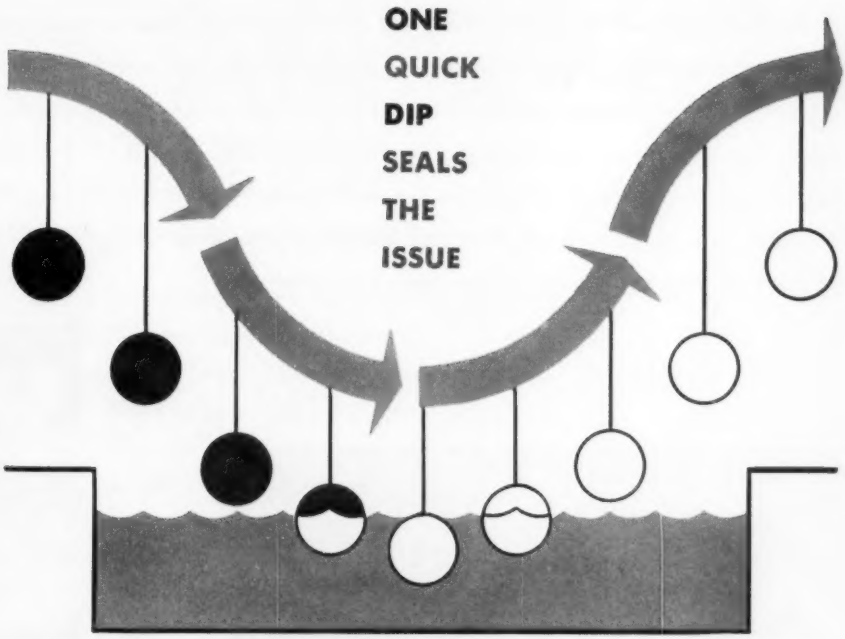
G-342

NORTON
ABRASIVES
Making better products... to make your products better

NORTON PRODUCTS
Abrasives • Grinding Wheels
Grinding Machines • Refractories

BEHR-MANNING DIVISION
Coated Abrasives • Sharpening Stones
Pressure-Sensitive Tapes

For more data circle 305 on Postpaid Card



CORDOBOND® R-203 • Sealing and Finishing Compound

Fast sealing and finishing in one operation for porous metal castings. Corrosion resistant, impervious to action of water, sulfur, acids, alkali and other contaminating factors.

Seals minor porosity and furnishes a pleasing appearance to the part. Dip, spray, brush or flow coating techniques are commonly used.

Standard colors are black and brown — other colors available upon request.

DIP PROCESS TECHNICAL DATA

Cleaning: Standard etching, neutralizing and drying.

Dip: Viscosity controlled with thinner. Pre-try Temp. ° - 120°F - 130°F. Curing Temp. ° - 180°F - 190°F.

Finish: Semi Gloss. Tough, chip and peel proof. Leak proof.

Wt/gal: 7⅝.

Please send to

Name .....

Company .....

Address .....

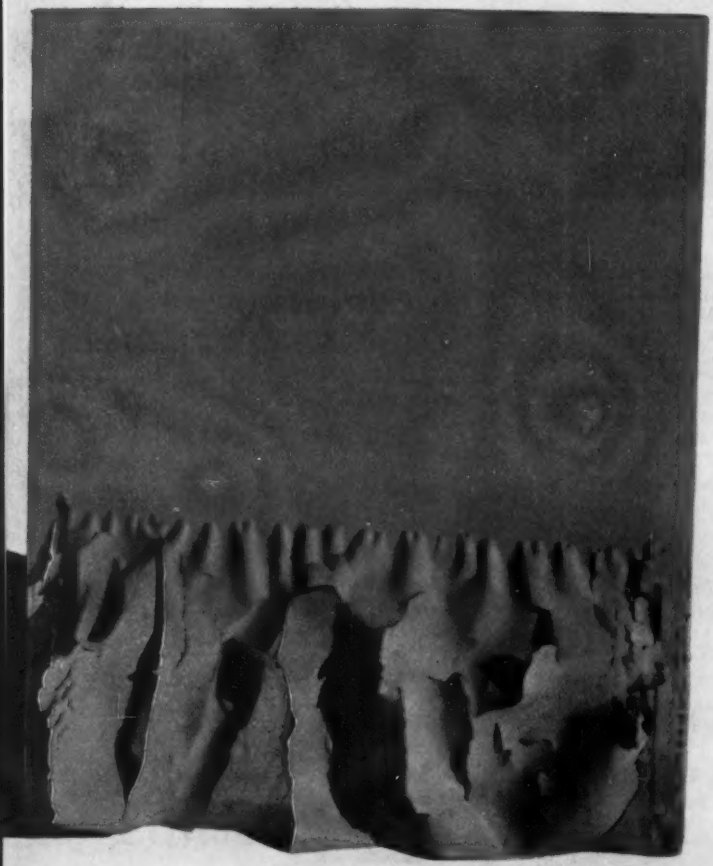
Dept. ..... ☐

1. Additional info on Cordobond R-203
2. 1 pt. sample Cordobond R-203 for $1 C.O.D. to cover handling costs ☐

CORDO CHEMICAL CORPORATION • 34 Smith St. • Norwalk, Conn.

For more data circle 306 on Postpaid Card

How to make organic finish stripping an exact science: Over the years to meet changing requirements, Enthone has developed a wide range of strippers for organic finishes. There are the S (for solvent type) Strippers which can dissolve or strip nitrocellulose lacquers, vinyl coatings, enamels, epon or epoxy type baking finishes. There is the A (alkaline) series which strip phenolics from steel, enamels from plastic bases. And so on. The point is that if Enthone's answer to your stripping problem is not a stock item, Enthone applied research will develop the precise stripper you need. Enthone, Inc., 442 Elm Street, New Haven 11, Connecticut.



ENTHONE

ENTHONE, INC. IS A SUBSIDIARY OF AMERICAN SMELTING AND REFINING COMPANY

M. L. FORNEY, *Publisher*
RICHARD S. KLINE, *General Manager*
EZRA A. BLOUNT, *Editor*
GERARD H. POLL, JR., *Associate Editor*
H. LEROY BEAVER, DR. C. FRED GURNHAM, DR. NELSON F. MURPHY — *Consulting and Contributing Editors*
NORMAN S. ROGERS, *Art Editor*
K. M. GETTELMAN, *Circulation Manager*

products finishing

Vol. 22 No. 10 July, 1958

FEATURES IN THIS ISSUE:

29 Is Your Finishing Shop REALLY Under Control? • *Editorial*
30 Finishing Industry Interviews: Part II
38 Nuts and Bolts: Plating to Prevent Seizure • *By W. B. Stephenson, Jr.*
42 Plating for Space Travel
47 Ford's New Bumper Plating Line
52 A "Hi-Fi" Painting System
56 How Safe Is Your Safety Solvent? • *By Paul Grotts*
60 A Fast Finish
65 Third National Coated Abrasive Machinery Show in Review • *By Ezra A. Blount, Editor*
72 Comments on Infrared Energy for Paint Drying and Baking • *By W. R. Van Ittersum*
78 Assembled Plating Racks: Model Changes No Hurdle
82 Spotlighting Finishing Progress
82 —A New Theory to Explain Stress Corrosion Cracking of Stainless Steel

6 Advertising Representatives
64 Reprints Available

DEPARTMENTS:

90 Finishing Clinic
96 New Equipment, Materials, Processes
141 New Books
144 News of the Finishing Industry
151 Meetings of Interest to Finishers
152 Product Literature
157 Classified Advertising
158 The Finishing Touch
160 July Advertisers' Index

Member BPA NBP

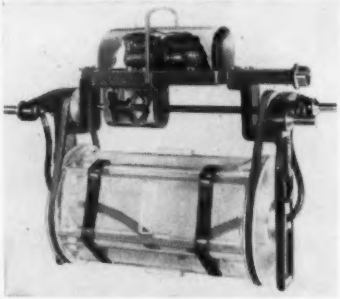
Published monthly with two issues in March and copyrighted (1958) by Gardner Publications, Inc., 431 Main St., Cincinnati, Ohio. Printed in U.S.A. Accepted as controlled circulation publication at Cincinnati, Ohio.

For more data on advertisement on opposite page, circle 307 on Postpaid Card

contents

page 5

STUTZ — PRESENTS A NEW DESIGN IN PLATING BARRELS



Featuring

Motor drive integrally mounted
Complete cycle
Continuous rotation from one operation to the next
Cog belt cylinder drive
Positive grip one piece outboard mounted cog pulleys

The Stutz Co. has advanced plating barrel design and construction so that today these units are highly productive and maintenance reduced to a minimum. Costly replacement parts such as cylinder gears and bearings are eliminated completely. The only expendable parts are the belts. To provide long belt service, a special non-stretch cog belt with internal steel reinforcement is used. Belts can be changed, if necessary, in seconds at the tank without tools. The Stutz hanger extends below the cylinder thereby adding protection to the cylinder and also permitting the assembly to be lowered to the floor. The Stutz assembly incorporates a lock-in design that permits removal of the cylinder instantly from the hangers without the use of tools. This means cylinders with special perforations or partitions can be installed or removed quickly.

The motor-combined unit shown affords special economy since drives on tanks are not required, and rotation of the cylinder can be continued from one operation to the next. Solution dragout is therefore reduced to a minimum. This design is ideal for application on the carriers of a full automatic conveyorized plating machine.

The motor drive to the countershaft is through bevel gears operating in a gear case and permanently lubricated. Standard R.P.M. of the cylinder is 5; however other speeds are obtainable at no extra cost.

The initial cost of belt driven units is substantially lower than gear driven barrels, and maintenance virtually eliminated.

Serving Industry 35 Years

THE STUTZ CO.

4410 Carroll Ave., Chicago 24, Ill.

For more data circle 308 on Postpaid Card

products finishing

advertising representatives

Duncan W. Barton, 342 Madison Ave., New York 17, N. Y., Murray Hill 7-7390. Eastern Pennsylvania, central New York State, New Jersey, Maryland, Delaware, Washington, D. C., Long Island, Brooklyn, New York City, Staten Island.

Granville M. Fillmore, *Vice President,* 342 Madison Ave., New York 17, N. Y., Murray Hill 7-7390. Eastern New York State, Connecticut, Massachusetts, Rhode Island, Vermont, New Hampshire, Maine.

George E. Hay, 431 Main Street, Cincinnati 2, Ohio, CHerry 1-5924. Western Pennsylvania, western New York, Ohio, Kentucky, southern Indiana.

John M. Krings, *Vice President,* Tribune Tower, Chicago 11, Illinois, DElaware 7-5441. Western Michigan, Illinois, Wisconsin, Iowa, Minnesota, the Dakotas, northern Indiana.

Jeryl L. Marlatt, 764 W. Lincoln, Birmingham, Michigan. Eastern Michigan, northwestern Ohio.

Norman S. Rogers, 431 Main Street, Cincinnati 2, Ohio, CHerry 1-5924. Central Indiana.

Gene J. Schwarber, *Advertising Manager,* 431 Main Street, Cincinnati 2, Ohio, CHerry 1-5924. Missouri, Kansas.

The Robert W. Walker Company, 730 S. Western Ave., Los Angeles 5, Calif., DUnkirk 7-4388; 57 Post St., San Francisco 4, Calif., SUtter 1-5568. California, Oregon, Washington.

★ ★ ★

Circulation over 21,500— largest in the finishing field

GRIND
POLISH
BUFF
DEBURR

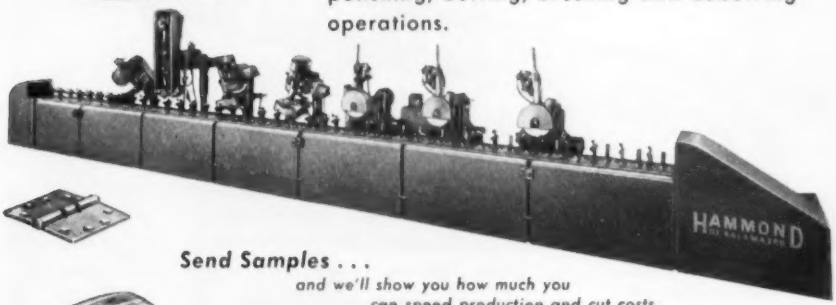
WITH A

Hammond STRAIT LINE AUTOMATIC

Over and Under Strait-Line shown. Other Strait-Lines available in Reversing, Horizontal Return and Open Center types.

Head styles include floating, non-floating and oscillating with 1-1/2 to 25 HP range.

Hammond Automatics will speed your grinding, polishing, buffing, brushing and deburring operations.



Send Samples . . .

and we'll show you how much you can speed production and cut costs.

Hammond Machinery Builders INC

1622 DOUGLAS AVENUE KALAMAZOO, MICHIGAN

For more data circle 309 on Postpaid Card

Remember—YOUR COST PER FINISHED ARTICLE IS THE TRUE COST OF YOUR CLEANER

Northwest's production-tested chemicals and "Right-the-first- time" recommendations will save you money.

Northwest's Metal Cleaning Specialists have at their command such outstanding processes as LO-HI pH—for cleaning prior to plating, painting or vitreous enameling; ALKALUME—for preparing aluminum for finishing and spot welding; INTERLOX—for phosphate coating; SPRA-LUBE—to control over-spray of "todays" paints in water-wash paint booths; PAINT STRIPPERS—specific to your needs; SUPERDRAW AND FLUID FILM—for drawing metals. Your Northwest Cleaning Specialist is as close as your phone.

Northwest products are manufactured on the west coast by—
ALERT SUPPLY COMPANY • **Los Angeles**

LO-HI pH

NORTHWEST CHEMICAL CO.
9310 ROSELAWN DETROIT 4, MICH.
pioneers in pH cleaning control *serving you since '32*

For more data circle 310 on Postpaid Card

For the finishing touch that means so much!

From high-powered automobiles to high-flying jet engine parts, Jewel Brand Coated Abrasives are bringing fast, economical grinding, smoothing and polishing methods to the manufacture of hundreds of precision products. It will pay you to bring their many advantages to bear on your finishing problems. Remember . . . end products **cost less** when you finish with Jewel Brand Abrasives. Order from your Industrial Distributor or write us for help with special applications.

JEWEL BRAND

COATED ABRASIVES

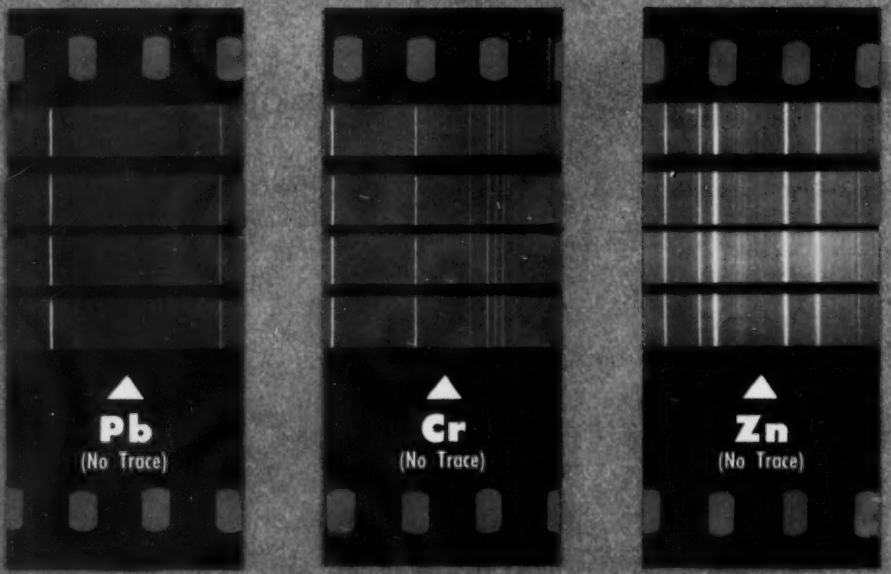
Belts • Rolls • Sheets • Discs • Specialties

ABRASIVE PRODUCTS, INC.

South Braintree 85, Massachusetts

For more data circle 311 on Postpaid Card

COPPER CYANIDE



Spectrographic Analysis PROVES CP's Copper Cyanide CONSISTENTLY Free From Impurities

Whenever you use CP's Copper Cyanide you can be *sure* of its purity and dependability . . . because every batch is carefully tested.

The photographs above illustrate the absence of any trace of lead, zinc or chromium. This film record is typical. In addition, our Copper Cyanide is completely free of sulphur or organic contamination. In tests run on production samples over an 18 month period, no deviation in purity was noted. The quality of all our products is constantly checked both by spectrographic analysis and under actual working conditions. Our own findings are confirmed by tests on a typical production sample by an independent laboratory, Ledoux & Company.

As domestic producers, we offer reliability of source, through conveniently located distributors.

Investigate the advantages of CP's Copper Cyanide. We will be happy to send you a copy of Ledoux' Analysis Report and a sample for your own testing, without obligation of course.

CP COPPER PIGMENT & CHEMICAL WORKS, INC.

212 Bayway • Elizabeth 2, New Jersey

For more data circle 312 on Postpaid Card

Better Finish for Reconditioned Drums

with

'BURDETT "Radiant Heat" OVEN

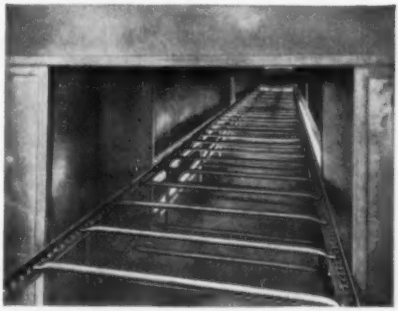
A new Burdett "Radiant Heat" Oven solved a difficult heat processing problem for Geo. P. Garrett & Sons of Baltimore, Md.

A conventional convection type oven was used to bake reconditioned steel drums sprayed with a special phenolic resin emulsion so they could be used in packaging edibles, chemicals, and other high acidity products. Results were highly irregular and not up to the exacting specifications required.

This new Burdett 50-foot, gas fired, radiant heat, recirculating oven was installed and is producing excellent results over a wide range of operating temperatures. The Radiant Heat Combustion System brings the work to selected operating temperature in half the normally required time and maintains it uniformly throughout the oven by a specially designed recirculating system.

Whether you are considering a completely new finishing system, an addition to your present layout, or the renovating of your old system, consult Burdett for the engineering answer with the bonus values—either radiant or convection.

Reconditioned Steel Drums being sprayed with special emulsion of phenolic resins for use with high acidity products. Drums are entering new Burdett oven at Geo. P. Garrett & Sons, Baltimore, Md.



Interior of Burdett Radiant Recirculating "Dual Heat Oven," showing the radiant gas burners located on each side of conveyor.

BURDETT

MANUFACTURING COMPANY

4916 South Monitor Avenue • Chicago 38, Illinois

Detroit Philadelphia New York Cleveland Dallas

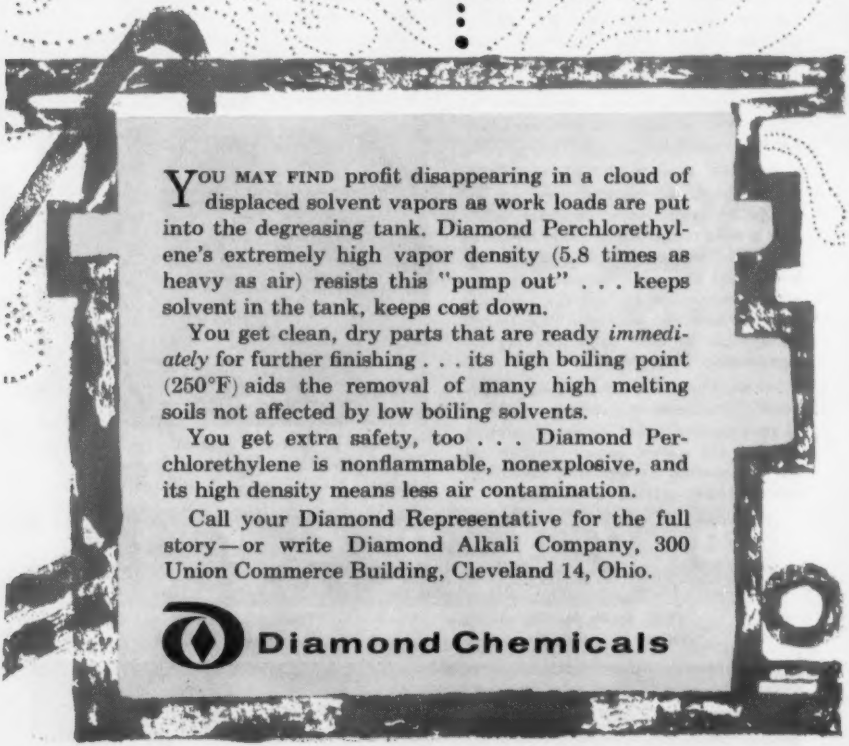
Manufacturers of

COMPLETE FINISHING SYSTEMS — "RADIANT-HEAT SYSTEMS", OVENS, HEATERS, AIR MAKE-UP UNITS, SPRAY BOOTHS AND WASHERS

For more data circle 313 on Postpaid Card

is your degreasing solvent suffering from

PROFIT "PUMP OUT"



YOU MAY FIND profit disappearing in a cloud of displaced solvent vapors as work loads are put into the degreasing tank. Diamond Perchlorethylene's extremely high vapor density (5.8 times as heavy as air) resists this "pump out" . . . keeps solvent in the tank, keeps cost down.

You get clean, dry parts that are ready *immediately* for further finishing . . . its high boiling point (250°F) aids the removal of many high melting soils not affected by low boiling solvents.

You get extra safety, too . . . Diamond Perchlorethylene is nonflammable, nonexplosive, and its high density means less air contamination.

Call your Diamond Representative for the full story—or write Diamond Alkali Company, 300 Union Commerce Building, Cleveland 14, Ohio.

Diamond Chemicals

For more data circle 314 on Postpaid Card

But it's not the whole story. For in addition to attractive appearance, an industrial coating must be high in protective quality. It must not only look well to help you sell your products . . . it must wear well to keep them sold.

Our development engineers appreciate this, and as a result, approach every industrial finishing problem with the same objectives in mind—beauty **and** utility. If the specific requirements of an unusual application cannot be met with an existing formula, our technicians, using the most modern laboratory equipment, will create an entirely new finish . . . proven both under actual field conditions and standard accelerated tests. As a result, the final coating is easy to use, appealing and long lasting.

Let us help you with the right answer to your finishing needs. A letter, telegram or telephone call will bring you our services. Definitely, no obligation.

UNIVERSAL PAINT & VARNISH INC.

BEDFORD, OHIO • Box [illegible] • Call BEdford 2-2280

We engineer your finishing problems

For more data circle 315 on Postpaid Card

SAVED... 34 CARLOADS OF COAL PER YEAR

...BY THE USE OF NEW COLD BONDERITE SYSTEM

That's the way one plant figures it. 1700 tons of coal saved per year because the Cold Bonderite System cuts steam requirements for the phosphating line by as much as 70%.

Have you asked the Parker man about the new Cold Bonderite System for your phosphating line? There's no reason for you to go on paying high steam costs when this new low temperature combination produces high quality results with real economy.

Your request for information on the new Cold Bonderite System will get high priority from us. Write, call or wire today.

Since 1914 — leader in the field

PARKER

RUST PROOF COMPANY
2172 E. Milwaukee, Detroit 11, Michigan
Tel. TRinity 5-3377

BONDERITE	BONDERITE and BONDERLUBE	PARCO COMPOUND	PARCO LUBRITE	TROPICAL
corrosion resistant paint base	aids in cold forming of metals	rust resistant	wear resistant for friction surfaces	heavy duty maintenance paints since 1883

*Bonderite, Bonderlube, Parco, Parco Lubrite—Reg. U.S. Pat. Off.

For more data circle 316 on Postpaid Card

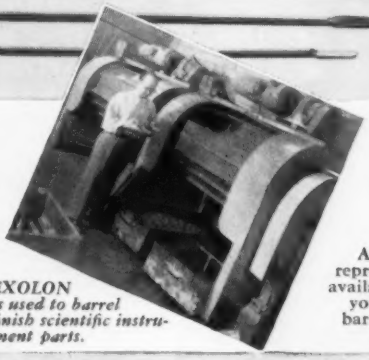
NOW... Finish Precision Parts with EXOLON Tumbling Abrasives

Savings over old Hand Finishing Methods—50 to 80 Percent

Today, scientific research has developed equipment and abrasives for better barrel finishing. Such an abrasive is EXOLON, an electrically fused aluminum oxide, resistant to fracture and extremely hard. EXOLON is pretumbled to produce rugged shapes that stand up longer in operation. Results are always the same — batch after batch when operated in formulated finishing cycles.

Precision parts shown above were barrel finished with EXOLON to a predetermined stock removal and surface finish. Whether castings, stampings or machined parts, there is an EXOLON abrasive to meet your finishing needs.

Write for folder and recommendations!



EXOLON is used to barrel finish scientific instrument parts.

An EXOLON representative is available to help you with your barrel finishing problems.

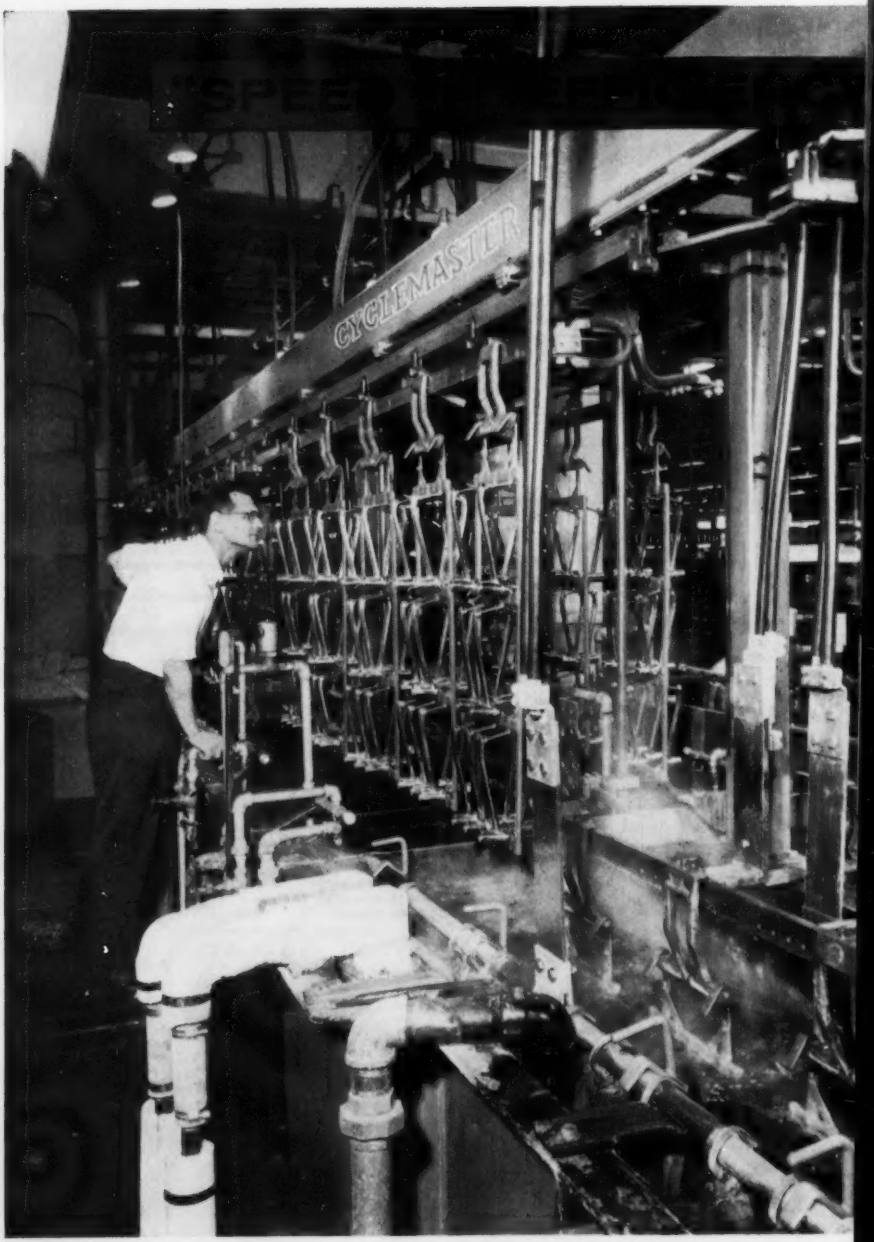
EXOLON Tumbling Abrasive is carefully graded in sizes from 2½ inches down to fine powders.

THE EXOLON COMPANY

943 EAST NIAGARA STREET — TONAWANDA, N.Y.

Manufacturers of SILICON CARBIDE and ALUMINUM OXIDE ABRASIVES

For more data circle 317 on Postpaid Card


CYCLEMASTER

ACCURACY . . .

THAT'S WHAT OUR UDYLITE AUTOMATIC MEANS TO US!"

Reports Mr. William Buisman, Plating Superintendent
to Mr. Ken Daly, Vice President and Gen. Mgr.
WESTERN AUTOMATIC SCREW COMPANY
ELYRIA, OHIO

"The *right* combination . . . a Udylite Cyclemaster and Udylite's 66 Bright Nickel Process . . . that's our solution for faster, high quality plating."

Western Automatic Screw Company, one of the world's largest manufacturers of screw machine products, cold upset parts and Moen One-Handle Mixing Faucets has come to rely on Udylite's brand of trouble-free operation. The Udylite 66 Bright Nickel Process insures faster plating . . . with unexcelled brightness and leveling.

By combining this revolutionary bright nickel bath with the volume production characteristics of the Udylite Cyclemaster, they now enjoy high output with unusually low maintenance. As they put it, "We haven't gone near our Cyclemaster except for routine maintenance since it was installed and the quality of our plating work has been excellent."

For high volume plating . . . with the advantages of low cost operation and above-par quality, contact your local Udylite salesman. He can give you the facts for faster, finer metal finishing. Call him today, or write direct to:

the **udylite** corporation

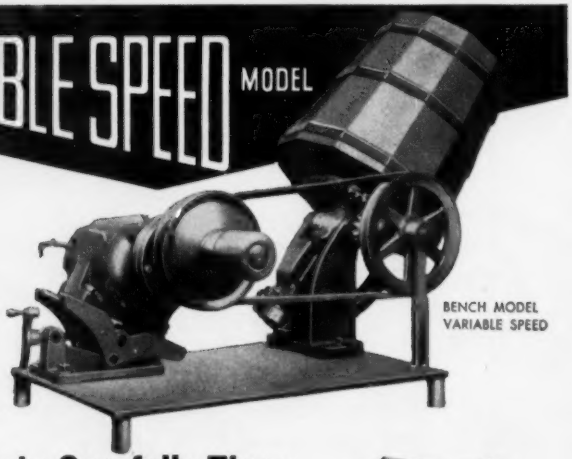
detroit 11, michigan • world's largest plating supplier

For more data circle 318 on Postpaid Card

INVESTIGATE THIS TIME-SAVING

VARIABLE SPEED MODEL

Bench-Type Single Speed



BENCH MODEL
VARIABLE SPEED

No. 5—Single Speed

Note Carefully These IMPORTANT POINTS

Barrels can be filled with parts or abrasive—*while running.*

Work can be watched — samples removed for inspection — *while running.*

Angle can be changed for best abrasive or polishing action — *while running.*

Barrels can be emptied by tilting to pouring position — *while running.*

Barrels are made in various sizes, shapes, and materials. They are easily replaced.

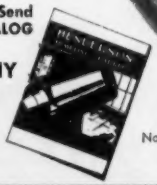
No. 5—Variable Speed

No. 5A—Single Speed

No. 5A—Variable Speed

No. 6—Single Speed

If You're a Tumbler, Send for This NEW CATALOG



No. 6—Variable Speed

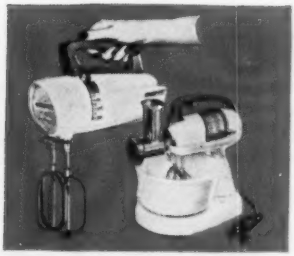
THE HENDERSON BROS. COMPANY

"The Tumbling Barrel People"

138 SOUTH LEONARD STREET
WATERBURY, CONNECTICUT

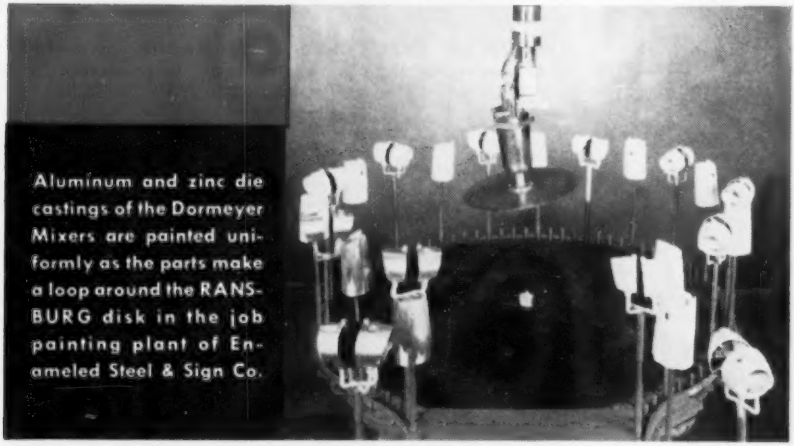
SINCE 1880 DESIGNERS AND BUILDERS OF TUMBLING BARREL EQUIPMENT

For more data circle 319 on Postpaid Card



DORMEYER MIXERS are painted with RANSBURG NO. 2 PROCESS

. . . and high quality standards are easily maintained with Electrostatic Spray Painting



Aluminum and zinc die castings of the Dormeyer Mixers are painted uniformly as the parts make a loop around the RANSBURG disk in the job painting plant of Enameled Steel & Sign Co.

● Enameled Steel & Sign Co. is able to serve many customers like Dormeyer, for their Chicago job painting plant is equipped with modern and efficient finishing facilities for producing high quality, high volume painting.

Electrostatic spray painting has practically replaced all other methods here, for the flexibility and near 100% efficiency of the Ransburg No. 2 Process enables Enameled Steel to serve many manufacturers of a wide variety of products. And, this with a comparatively small labor crew!

Today—with Ransburg No. 2 Process—Enameled Steel is realizing more than 60% paint savings over former hand spray. Rejects have been cut to less than 1%, for the Ransburg No. 2 Process applies a uniform, high quality finish never before obtainable with old-fashioned painting methods.

THINK OF WHAT 60% PAINT SAVINGS WOULD MEAN IN YOUR OWN FINISHING DEPARTMENT

Whatever you manufacture, if your production justifies conveyorized painting, you should look into the savings and improved quality which can be yours with Ransburg Electro-Spray. Let us tell you about the complete Ransburg services, including the test painting of your products in our laboratories.

Ransburg ELECTRO-COATING CORP.

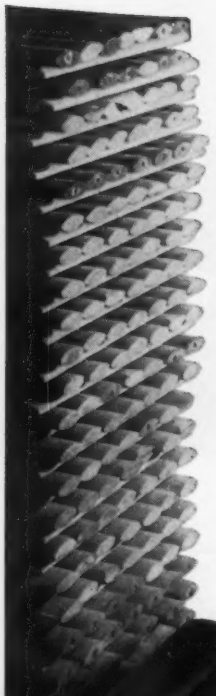
RANSBURG

Indianapolis 7, Indiana

For more data circle 320 on Postpaid Card

Prompt Delivery of any Quantity

HARSHAW
Nickel Anodes
99+%



HARSHAW XXX CAST CARBON NICKEL ANODES are oval 1½″ x 3″ in cross section and are available in any length desired. Weight is approximately 1.1 lbs. per linear inch. They are normally used in dull, semi bright and bright nickel plating baths where the pH is 4.5 or lower.

HARSHAW ROLLED OVAL CARBONIZED NICKEL ANODES are 1¼″ x 3″ in cross section and are available in any length desired. Weight is approximately 1 lb. per linear inch. They are generally used in dull, semi bright and bright nickel plating baths where the pH is 4.5 or lower.

HARSHAW ROLLED OVAL DEPOLARIZED NICKEL ANODES have the same cross section and weight as the rolled oval carbonized nickel anode and are also available in any length desired. These anodes are generally used in nickel plating baths where the pH is 4.0 or higher; they are extremely suitable for such use, as they will corrode well over a wide range of operating conditions.

PACKAGES—Harshaw anodes are wrapped in a fibre reinforced laminated (without asphalt) paper. They are protected from tramp oils, dirt and grease and remain clean until used. The possibility of such contaminents being introduced into the plating solution from anodes is thus kept to a minimum.

Harshaw anodes are shipped in compact packages which feature built-in skids and facilitate quick handling by mechanical or hand trucks. The packages stack easily and quickly. Also, no deposits or returnables are involved with this type of packaging.

Harshaw Nickel Anodes are readily available and prompt shipment of any quantity will be made upon receipt of your order.

Recasting Service

Our foundry facilities are available for recasting nickel anode scrap. Contact your nearest Harshaw Branch for further details.

HARSHAW

THE HARSHAW CHEMICAL COMPANY

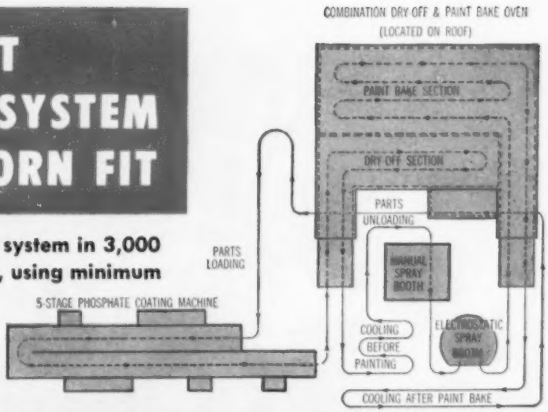
1945 E. 97th Street • Cleveland 6, Ohio

CHICAGO, ILLINOIS • CINCINNATI, OHIO • CLEVELAND, OHIO
DETROIT, MICH. • HOUSTON, TEXAS • LOS ANGELES, CALIF.
HASTINGS-ON-HUDSON, N. Y. • PHILADELPHIA, PENNSYLVANIA
PITTSBURGH, PENNSYLVANIA

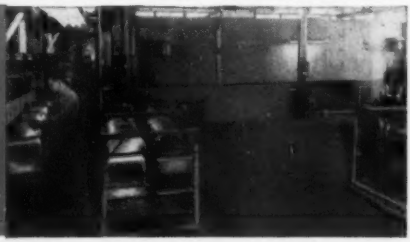
For more data circle 321 on Postpaid Card

BIG OUTPUT FINISHING SYSTEM with a SHOEHORN FIT

. . . Ransohoff complete system in 3,000 sq. ft. triples production, using minimum paint, rework zero



Single unit heats combination oven, with separate dry-off and paint bake sections, on roof. Low fuel cost despite near-arctic winters.



Loading metal chairs on conveyor to 5-stage phosphate-coating machine. Sections are built back to back to conserve space.

The challenge at Krueger Metal Products, Green Bay, Wisconsin, would have baffled any but the top brains in the business. The situation: A one-floor plant with ceiling too low for overhead cool-off. Only 3,000 sq. ft. of floor area, studded with posts, requiring oven on roof. Roof not strong enough to support oven. Outside temperature of 10° for several months with heavy snow-load.

True to their tradition since 1916, the Ransohoff team came up with a complete, amazingly efficient system sandwiched into 3,000 sq. ft. including loading, unloading, and two cooling areas. And is their system performing? See what Mr. C. E. Saunders, Krueger's General Superintendent, has to say:

"Our new Ransohoff finishing system has tripled our production, limited only by the ability of our operators to hang and take chairs off. Whereas we formerly had difficulty in getting an even finish without considerable rework, our touch-up is now virtually zero. Our finish is evenly applied using a minimum of paint. Temperature recording charts show a variation of only ± 2° in our oven. Even on zero degree days, the roof oven heats up quickly to required temperature, while the entire system uses minimum fuel".

Write **RANSOHOFF, INC., 610 N. Fifth St., Hamilton, Ohio,** *for an answer to your problem. Send parts for test-processing, if you wish. No obligation.*

Ransohoff *The oldest name... the newest ideas*

Designers and Builders of Equipment for the Surface Treatment of Metals

• Washing • Rinsing • Burnishing • Rustproofing • Sawdust Polishing and Drying • De-Scaling • De-Burring • Drying • Pickling • Complete Finishing Systems • Foundry Wet Cleaning Mills • Ultrasonic Cleaning

For more data circle 322 on Postpaid Card

No SPECIAL HANDLING REQUESTED

This means new business for somebody. It could be you.

Because vacuum-metallized pieces now can "take it," thousands of products will, for the first time, be finished this new way.

More durable lacquers now protect the superb finishes only vacuum metallizing can produce at low cost. New lacquers and resins now stand up to rigorous abrasion tests and exposure to salt spray and high humidity.

Vacuum metallizing is sure to grow rapidly. New business is waiting for you.

At CEC, we are ready to help you with a full range of vacuum coaters, headed by a large 48″ model for metallizing large pieces fast and at low cost.

We'll be glad to send you bulletins on our line of coaters, and share our experience in helping you set up operations.

Consolidated Electrodynamics

Rochester Division, Rochester 3, N. Y.

NATIONWIDE COMPANY-OWNED SALES AND SERVICE OFFICES

For more data circle 323 on Postpaid Card

FREE *trial!*

TRY differentiated KLARIFIANT

SPRAY BOOTH COMPOUND

GUARANTEED NO COST TO YOU

(unless you are completely satisfied)

CHECK THESE ADVANTAGES:

- No Foam Problem
- Clean Booths
- Perfect Paint "kill"
- No Curtain Build-up
- No Clogged Nozzles
- Less Manual Clean-up
- No Booth Rusting
- Low Over-all Cost

Diff. Klarifiant is used by more plants than any other water washing compound. If you are not using Diff. Klarifiant you are not using the compound that will save you the most time and money.

Find out for yourself at no cost. Call us collect, Garfield 1-5100, line 9, Cincinnati, and we will arrange for your Diff. Klarifiant trial. Or, send coupon on back of postcard today.

THE DuBOIS CO. INC.

CINCINNATI • *Other Plants:* Los Angeles • Dallas • E. Rutherford, N. J.

THE DuBOIS CO., INC.
1120 W. FRONT ST.
CINCINNATI 3, OHIO

☐ Send Diff. Klar. on trial. No cost unless you are completely satisfied.

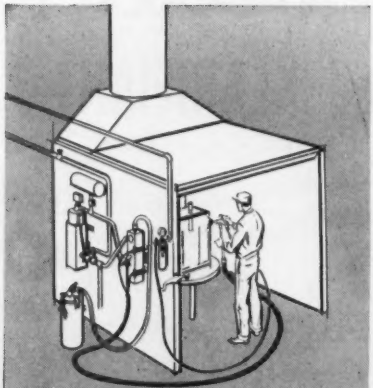
☐ Send Diff. Klar. information.

NAME

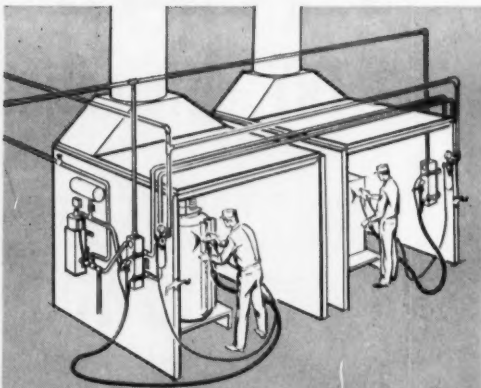
ADDRESS, CITY, STATE

For more data circle 324 on Postpaid Card

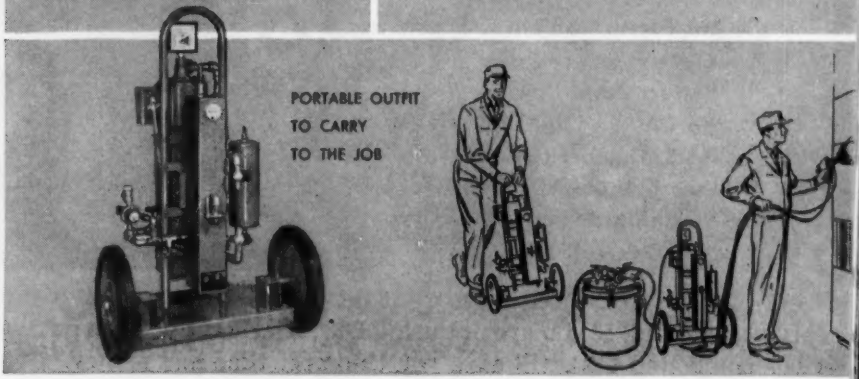
How DeVilbiss Hot



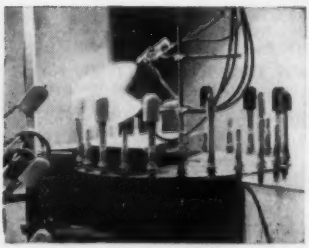
STANDARD OUTFIT . . .



ADAPTABLE TO MANY REQUIREMENTS

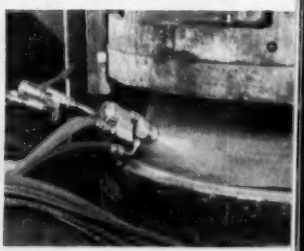


PORTABLE OUTFIT
TO CARRY
TO THE JOB



Automatic Spray Machines coat any shape quickly, automatically, economically. Send for Series I-8000 Bulletins.

Automatic Guns spray drawing compound for accurate, controlled die lubrication. Send for Catalog I-1125A.



Spray cuts painting costs

Heavier film builds • Less overspray
Faster drying • Easier application
Fewer rejects
Better flow-out for high gloss

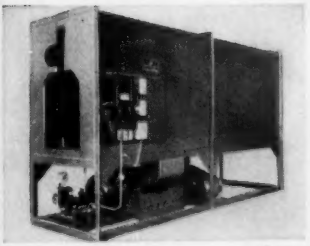
Using a DeVilbiss Paint Heater, you can get better coverage with *one* coat than you generally get with *two or more* cold-sprayed coats!

Here's why: Heat acts as a thinner to permit easier atomization and brings about new efficiency in spray painting. Even with your regular paint, heavier finishes can be applied with a savings of up to 50% in materials.

What's more, thinners are vaporized faster, drying time is decreased, finishes flow smoother and with less shrinkage. And the lower spraying pressure greatly reduces wasteful overspray.

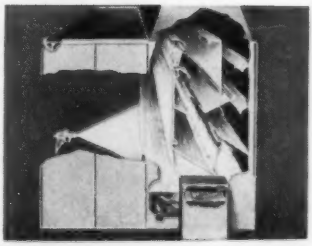
Call your nearest DeVilbiss branch today for the complete paint-heater story; or write for free booklet, "New Efficiency from Hot Spray." The DeVilbiss Company, Toledo 1, Ohio.

DE VILBISS



← *Ovens* are designed and built to meet your layout and process requirements. Send for Oven Catalog.

→ *Spray Booths.* Over 700 standard models provide efficient paint trapping. Send for Catalog I-7000.

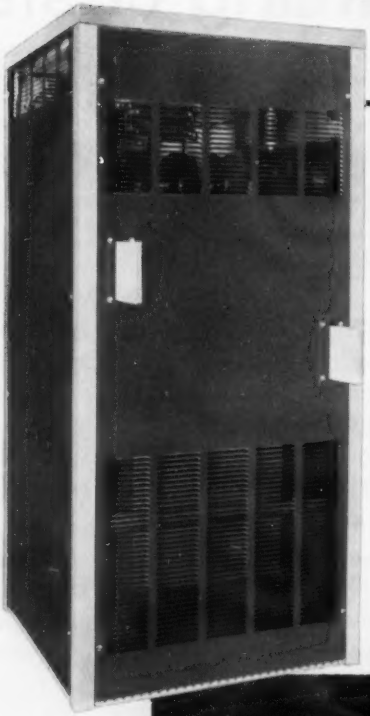


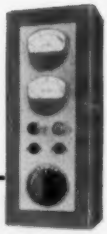
For more data circle 325 on Postpaid Card

HERE'S NEWS FROM

SILICON

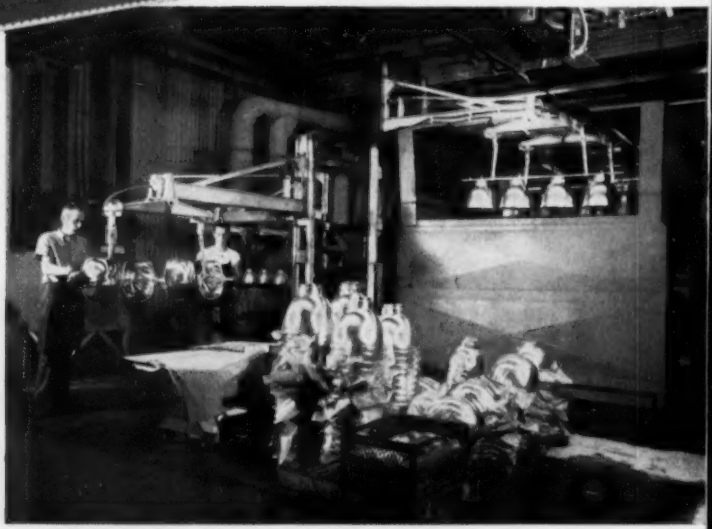
WITH AUTOMATIC





IN A SMALL REMOTE CONTROL station you can now have any of these features of the new General Electric silicon plating rectifier: automatic current density, constant current, constant voltage, and automatic anodizing.

ATTENTION ALL ANODIZERS: avoid costly rework and save labor with automatic current density or automatic anodizing cycle control. If you color-anodize, this control will save you money with more consistent results.



GENERAL ELECTRIC!

PLATING RECTIFIERS

CURRENT DENSITY CONTROL . . AT NO ADDITIONAL COST!*

heck these benefits you can get with the *new* Gen- al Electric silicon plating rectifier!

Silicon cells, conservatively applied to protect against damaging d-c overloads. The new G-E plating rectifier can withstand current surges of up to 50% over rated current—without cell failure!

With silicon equipment you can operate at higher ambient temperature (up to 113°F) than ever before—*without any derating!*

UT, BY FAR THE BEST NEWS

the Automatic Current Density Control! Now, for e first time, General Electric offers an automatic rrent density control *at a price any plater can ford.** Once you have tried this control you will not want to be without it! Now you can have just the proper voltage and current, whether you run one lightly loaded rack or many fully loaded racks.

General Electric has been making large installations of Automatic Current Density Control since 1953. The success of this type control has been proved. While *absolute* constant current density control can be realized only with constant work area and constant current control, the new G-E control will serve as a close approximation in most cases.

How does Automatic Current Density Control work? Basically, a current signal is taken from the rectifier output and used to adjust the output voltage to compensate for various sizes of loads. But for full details, send in the coupon below TODAY!

xamples: 1 1/2 to 9 volts, 1500 amperes, only $1890; 4 to 24 volts, 2000 amperes, only $4600. Prices include automatic current density control nd remote control box.

Progress Is Our Most Important Product

GENERAL ELECTRIC

TO: MR. J. E. MUNGENAST, Sec. C462-17
Rectifier Department, General Electric Company
Lynchburg, Virginia

Please send me more information—including prices—on the new General Electric silicon plating rectifier with Automatic Current Density Control.

Name _____

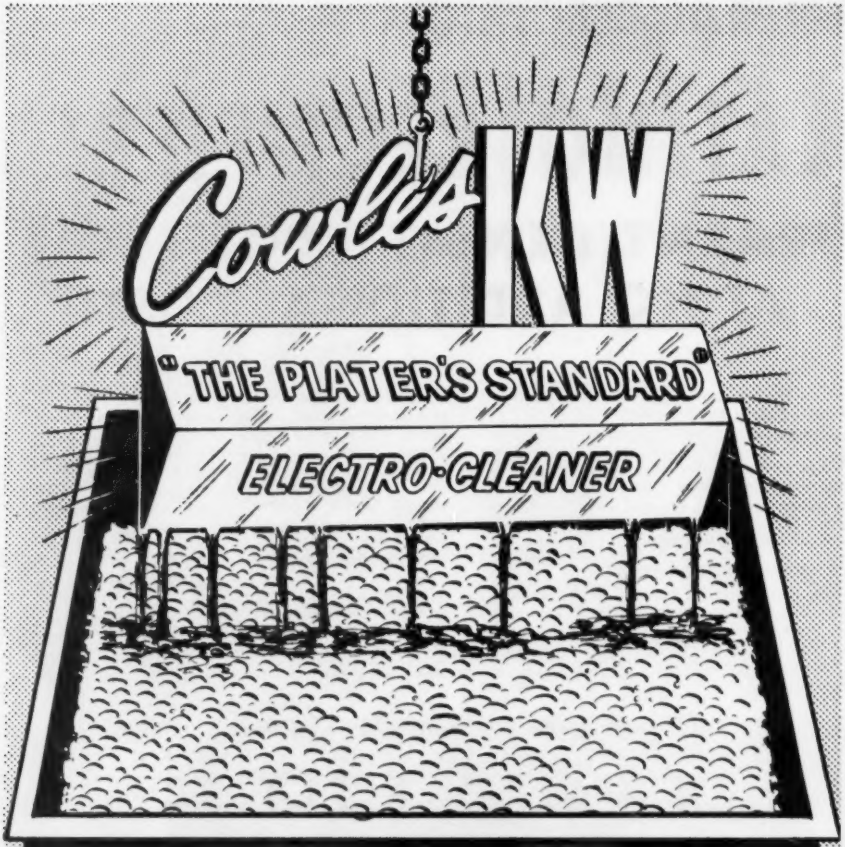
Company _____

Address _____

City _____ Zone _____ State _____

☐ I DO ANODIZING. Please send me information on anodizing control.

For more data circle 326 on Postpaid Card



Tops in

PERFORMANCE

ECONOMY

SAFETY

Learn more about it . . . send for technical data sheet on Cowles KW today!

Cowles **CHEMICAL COMPANY**

7016 Euclid Avenue • Cleveland 3, Ohio

For more data circle 327 on Postpaid Card

Is Your Finishing Shop REALLY Under Control?

During the past several years, the finishing industry has made notable advances in the application of process control—use of automatic control instruments as well as control techniques. Dr. William Blum, elder statesman of the electroplating industry, recently stated (see page 71 of the June issue of PRODUCTS FINISHING) that increased control of electroplating operations was the significant development of the past forty years in the plating industry.

With the many process control "tools" available to help keep a finishing operation running smoothly and efficiently with a minimum of expensive and troublesome rejects, it is worth while to take a critical look at your finishing process to be sure that all phases of the operation are really "under control." Here's a check list that may be useful.

- ☐ Is your paint spray booth area supplied with clean, filtered, humidity- and temperature-controlled air under slight pressure?
- ☐ Do you run spraying tests and baking tests on each batch of primer and finish coat before putting it on the spraying line?
- ☐ Are the automatic temperature controllers on your baking oven checked regularly?
- ☐ Do you employ manual or automatic viscosity controls to maintain uniform viscosity in the paint in your flow coating machine?
- ☐ Is the paint temperature controlled automatically?
- ☐ Are the solutions in your metal pretreatment processes checked regularly and maintained at the prescribed strengths?
- ☐ Are the temperatures of these solutions controlled automatically?
- ☐ Do you run regular tests to determine the amount of surface conversion coating per square inch that you are producing on the metal being processed?
- ☐ Is the film thickness of the primer or the complete finish coat being measured on a routine basis and held within prescribed limits?
- ☐ Are tests and analyses run on your plating solutions frequently enough to maintain correct operating conditions?
- ☐ Is the temperature, pH, and current density controlled automatically?
- ☐ Do you employ automatic conductivity controls to regulate the flow of rinse water according to the degree of contamination in each rinse tank?
- ☐ Do you run surface roughness, thickness, deposit stress measurements as routine tests of deposit quality?
- ☐ Do you correlate process control tests with accelerated corrosion tests to be sure that your product will stand up well in service?

Many more questions could be asked on this subject. Control of a finishing operation can be a manual or automatic process, depending upon what is practical for you. A thorough check of your shop to be sure that all the applicable controls are being used *properly* can pay you dividends in reduced costs and improved quality.

Ezra A. Blount

—EDITOR

Finishing Industry Interviews

Part II in a series of interviews with prominent people in the finishing industry

Herbert I. Littauer: Aluminum Alloys Which Develop Color on Anodizing Are of Interest to Us

Mr. Littauer, let me ask you something about the plating industry in Australia and your particular shop. What types of plating do you do in your plant?

Mr. Littauer: We specialize in anodizing and dyeing of aluminum. The type of work we do is:
1. Anodizing for architectural purposes: curtain walls, window frames, interior fittings.
2. Anodizing for corrosion protection: aircraft, army, navy specs.
3. Production of anodized and dyed multicolored nameplates.

Such as I see here illustrated by these samples?

Mr. Littauer: That is correct.

What methods of anodizing do you use?

Mr. Littauer: The methods we use for anodizing, bright dipping, and electropolishing are fundamentally standard methods. Some of the processes we use, we developed.

The production of nameplates requires quite a number of other processes apart from anodizing. We have our own art office, we do our own photography, we make our own printing plates (anodized lithoplates), we offset-print, stamp and form the nameplates.

I would be interested to hear what types of customers you serve.

Mr. Littauer: Our customers are a cross-section of industry: engineering, refrigeration, electrical appliances, furniture, advertising; in fact, every branding from cheese to leather goods, baby carriages, instrument panels, calculators.

Could you comment on the size of the Australian plating industry?

Mr. Littauer: I feel that I am not qualified to speak on the subject. I can tell you, however, about Melbourne, as I am reasonably familiar with the plating facilities there. Similiar setups exist in Sydney, Adelaide, Brisbane, and various other towns.

We have in Melbourne approxi-

mately 250 jobbing platers who employ between 3 and 100 people each; also, there are "captive" plating plants. These plants have in many instances semi-automatic or fully automatic plating machinery.

Are you particularly interested in some of the papers to be presented at this convention?

Mr. Littauer: I am certainly interested in many of the papers, but particularly, of course, in those which deal with anodizing. There is one on hard anodizing and a discussion on the subject.

Are you interested in some particular phase of anodizing?

Mr. Littauer: Yes, Mr. Blount. I would like to learn about continuous anodizing of foil and wire, and I am very interested in comparing production methods of anodized nameplates in the United States with our own. I am very much looking forward to having an opportunity for discussion with people engaged in similar work.

One of the primary purposes of a convention is to make possible discussion with others engaged in similar work. You mentioned to me previously some very interesting points regarding the influence of certain alloying components. Would you like to discuss this?

Mr. Littauer: Yes, certainly. We require aluminum of a purity of not less than 99.8 per cent, frequently 99.99 per cent super-purity aluminum, and alloyed for strength requirements. Apart from this there are very interesting developments about which I would like to learn more while I am in the United States. I refer to those alloys which allow us to obtain gray, black, gold, and perhaps other shades straight out of the anodizing bath without

Herbert I. Littauer (right) discusses anodized and dyed aluminum name plates with the editor of PRODUCTS FINISHING. Mr. Littauer is owner of Half Moon Products Pty. Ltd., Melbourne, Australia, and is a past president of the Melbourne Branch, A. E. S. He served as a delegate from that branch at the 45th A. E. S. Convention held in Cincinnati, May 18-22. Mr. Littauer brought with him an interesting exhibit of name plates to illustrate the ability of his technicians to reproduce almost any design on metal.

dyeing. I understand that these colors are fast to light. I am referring to the silicon and chrome alloys. I am very interested in comparing our treatment methods and experience with alloy sheets with the anodizing practices in use in the United States.

★ ★ ★

Dr. W. Andrew Wesley: Four Attacks on the "Rusty Bumper" Problem

Dr. Wesley, in many areas where a lot of salt and other chemicals are used to melt snow from the streets in winter, we hear frequent complaints about rusty automobile bumpers. Do you foresee a practical solution to this problem—a way to improve corrosion resistance of chromium plated steel?

Dr. Wesley: Well, Mr. Blount, as a research man I can tell you several directions in which this problem is being attacked. I foresee several ways in which improvement can take place.

For one thing, we have come to learn that it is not just a question of improving the coatings with respect to porosity; it is mainly a question of improving them with respect to resistance to pitting by corrosion itself. We have found that such things as the purity of the nickel and the stress in the nickel and chromium deposits are important in determining the type of breakdown that occurs in the chromium film and the appearance of the surface after this breakdown begins. In some cases, with certain combinations, many small, microscopic pits develop; in other cases, fewer and larger pits develop. The net result to the naked eye is quite different in the two cases, although the total damage may be the same. So one direction in which we're trying to improve coatings is to deposit them so that breakdown, when it does occur, presents the least objectionable appearance.

Now, did I understand you to say that the pits are in the chromium coating?

Dr. Wesley: They start in the chromium layer and go down into the nickel. I'm talking about what happens before any rusting appears.

Another direction in which work is being done that looks very promising is in increasing the thickness of the chromium layer. Years ago, of course, this was tried and studied and it was found that the thicker chromium layer failed, but not by pitting. It failed by cracking. Recently, however, we have learned to deposit chromium in such a way that it does not crack spontaneously. We are able to put on coatings that are three or four times as heavy as normal. These thicker coatings show great promise (in experimental work as well as outdoor exposure tests) of extending the time before the first rust appears.

The third way that looks promising is in the use of nickel layers—what we call multiple nickel layers. The first layer is deposited under one set of conditions and then the deposition is interrupted. The sec-

ond layer is deposited under another set of conditions. We cannot explain why as yet, but this procedure seems to improve the net behavior of the deposit. This improvement has been greater in marine and rural atmosphers than where salt on the streets and industrial gases are present, however.

The fourth way of improving corrosion resistance is very interesting to us, indeed. It involves the use of multiple nickel layers, with one layer of a metal quite different from nickel. Many combinations have been studied, and this has been done in more than one laboratory. From an experimental point of view, and indeed from a theoretical point of view, this method looks very promising. An example of such a four-layer coating would be a coating built up by depositing nickel on steel, then plating cobalt, then nickel again, and finally depositing the chromium layer. It appears that almost any metal that differs from nickel in corrosion potential will tend to alter in one way or another the shape of the pits that form and delay the time for complete perforation through all four layers.

The net result is that a longer time elapses before any rust appears. The best of all the combinations tested (and most of the metals in the periodic table that can be plated have been tried) has been the nickel, chromium, nickel, chromium combination. And oddly enough, the first layer in the sandwich — the first layer of chromium — behaves best if it is about the same thickness as the outer layer of chromium. We don't know why this should happen, but it does. I think this summarizes the hopeful prospects as far as research goes.

What's the best way for the plater to improve corrosion resistance of his products right now?

Dr. Wesley: I certainly wouldn't want to go into a working or operating plant today and tell the foreman plater just what to do to improve his coating by any one of these four methods. It's quite a different problem to plate the four-layer coating in the plant than it is in the laboratory. No one realizes this better than the research man.

If I had to advise someone what action to take immediately, however, I would tell him two things: one that has been tried and proven over many years, and another that is new. I would tell him to increase the thickness of his nickel coating. We know he won't get into trouble doing that. We know from 30 or 40 technical papers published in past

Dr. W. Andrew Wesley (right) suggested possible ways in which platers could secure nickel coatings or combinations of coatings which would offer better protection against corrosion. Dr. Wesley is manager of the Research Laboratory of International Nickel Company, and is the second vice president of the American Electroplaters' Society.

years that with the same quality of plating, corrosion resistance always increases with heavier nickel.

The other step I would recommend is to experiment with an increase in the thickness of chromium. I think this will not involve changes so drastic that the plater need study them too long. I feel that he will get improvement by increasing the chromium thickness.

To summarize, if I had to advise someone what to do today, I would say: "double the nickel thickness you have been using and multiply your chromium thickness by four!"

★ ★ ★

R. J. Hazucha: Important Properties of Lacquers for Electroplaters

Mr. Hazucha, what kind of products does your company supply to electroplaters?

Mr. Hazucha: Well, in general, we sell clear lacquers such as water-dip lacquers, lacquers that are used on hardware, plated ware like brass, copper and so on. And then, in the specialty line, we have a clear, water-white silver lacquer that we recommend for its sulfur resistance.

We also manufacture an interesting product for chrome plated die castings that have to be decorated with colors. We call it a baking lacquer. It air dries like a lacquer, but must be baked to improve its toughness and durability. One of the advantages of this material is that the finisher can put on three or four colors with only one baking. This is important where it is necessary to apply more than one color. Normally it would be necessary to spray each color and bake after each application. With this material, if masking is feasible, it's possible to apply several colors and then bake out all of the coatings at one time.

Usually this material is used in depressions on castings. You paint the background through a mask and then wipe the highlights, leaving the background in the desired color. Sometimes the entire casting is lacquered and baked, and then the background is sprayed another color to give a two-color effect.

Baking lacquer cures at 250-265 deg. F. in 30 to 45 minutes—a baking cycle that will not cause the castings to blister.

What are some of the problems in your business? What causes headaches for your customers most frequently?

Mr. Hazucha: My biggest problem is to teach customers to use the product that's required for a particular application. Many articles, for instance, are lacquered and then shipped to California, Florida and other humid regions. They begin to tarnish. The reason for this is that the finisher did not completely understand his requirements. He needed a lacquer with excellent humidity resistance. And just as a sidelight, I have noticed that for some reason or other, lacquers that have good sulfur resistance also have good moisture resistance. So if you get a lacquer with good sulfur resistance it's usually safe to use it on products that will be shipped to

the southern part of the country.

I have a couple of simple tests that I tell my customers to use in evaluating lacquers. First, I tell them to put a piece of solid copper or brass in a bottle of the lacquer. Let it stand for 96 hours. If the lacquer doesn't turn green or brown in this time and if the metal isn't etched, it's a pretty good lacquer.

Then I would take the same lacquer and apply it on a silver plated article. After drying it for 72 hours, I would put it in a cabinet with sulfur fumes generated by ammonium polysulfide. Check the piece once an hour and see how long it takes before the fumes get through the lacquer and tarnish the silver.

What is considered good resistance to these polysulfide fumes?

Mr. Hazucha: Eight hours or more. We find this: when we get a lacquer that will stand up for eight hours, you don't have to worry about it. A lacquer that will not stand more than 20 minutes of sulfide fumes will hardly protect a silver plated article until it is shipped.

In general terms, how does a lacquer produce good sulfur resistance? Is it the continuity of the film produced or is it some special chemical property within the lacquer formulation?

Mr. Hazucha: It's the chemical properties of the resins.

What recent developments in finishes are attracting the most attention at this time?

Mr. Hazucha: The industry is in the midst of developing good modified epoxy synthetics. There's still a lot to be done, but I think the results will be well worth the effort.

Rudolph J. Hazucha (right) comments on lacquers and epoxy coatings. Mr. Hazucha, technical service representative for The Clinton Company, Chicago, has attended 43 consecutive A. E. S. Conventions. He is chairman of the A. E. S. Honorary Membership Standards Committee and a past president of Metal Finishing Suppliers' Association, Inc.

These are clear finishes you are speaking of?

Mr. Hazucha: Yes. They are clear, baking-type epoxies. They are water-white, have good sulfur resistance and excellent adhesion. We have found that this type of finish is outstanding for protecting brass and copper plated tubular furniture, and this is just one of many applications for it.

Do you have any problem with the adherence of clear lacquer over polished chromium?

Mr. Hazucha: Very little. The only time we run into trouble is when the chromium coating is passivated. Passivation has to be remedied with phosphoric or fluoboric acid treatment to get good adhesion.

We can do the same thing with bright nickel and bright silver. I know of one case where a large escutcheon plate for a television set

—the frame around the tube—is bright nickel plated and then lacquered directly, without chromium plating, just by depassivating before lacquering.

Does this treatment affect the brilliance of the plate?

Mr. Hazucha: No. It doesn't affect it. It's still bright.

Is this treatment just a phosphoric dip?

Mr. Hazucha: Yes, about five per cent phosphoric acid.

★ ★ ★

Chester G. Borlet: Better Filtration Technique Helped

Mr. Borlet, what finishing processes do you perform in your plant?

Mr. Borlet: We are finishing zinc-base die castings entirely—copper, nickel and chromium plating.

Chester G. Borlet (right) discusses plating plant operating problems. Mr. Borlet is technical director of Grand Rapids Brass Company, Grand Rapids, Michigan. He has been a member of the Detroit, Los Angeles, and Grand Rapids Branches of the A. E. S. At the Cincinnati A. E. S. Convention he was elected third vice president of the Society. (Photographs by PRODUCTS FINISHING)

You do this with automatics?

Mr. Borlet: All automatic equipment. We have two machines—one to plate interior hardware—that is to interior specifications—and one machine that we use to plate for exterior service.

How do your processes differ for interior and exterior specifications?

Mr. Borlet: We use exactly the same processes, but vary the time.

So that you have thinner copper and nickel for interior service?

Mr. Borlet: Thinner nickel and copper, but the same thickness of chrome.

At the present time do you have a treatment system for taking care of your plating room wastes?

Mr. Borlet: We do a partial waste treatment. We treat all our chrome waste by reducing from hexavalent to trivalent and then disposing of this product. The other wastes are not treated, but we do segregate them. And we are leading up to a complete waste treatment system.

By segregation do you mean that you separate the acidic and alkaline wastes and then mix them to neutralize one another?

Mr. Borlet: Yes, that's correct.

Do you precipitate and filter out the reduced trivalent chromium?

Mr. Borlet: No. At the moment it's going to the sewer as a trivalent chromium solution.

Is the water that you use in plating treated before use?

Mr. Borlet: We are treating the last rinses on the chrome machines.

We circulate them through a demineralizer. This lowers the hardness and at the same time removes the chrome.

I imagine you do both plating and painting.

Mr. Borlet: Right. We do painting and plating.

Is the painting an auxiliary process to decorate plated parts or is it a matter of either plating the castings or painting them?

Mr. Borlet: Both. We have some parts that are plated and painted, and others that are just painted. We also do some phosphatizing and priming.

As technical director then, you are concerned with processing problems in both painting and plating?

Mr. Borlet: All processing problems that have to do with finishing.

There have been many improvements in processes, equipment and techniques in recent years. What would you say has been the largest step forward in your plant?

Mr. Borlet: Over the last few years I would say improved filtration techniques on our copper plating process have helped out tremendously. We have virtually eliminated roughness. This used to be a big problem, because it both detracted from the appearance of the part and lowered corrosion resistance at the same time.

Well, how about the future? Do you see any improvement now in the development stage that will improve your process or products?

Mr. Borlet: I believe that heavier chrome deposits from the crack-free or high-temperature-type baths will probably help in giving our products increased corrosion resistance. We've had encouraging test results.

If you do apply this heavier chrome, then can you reduce the nickel thickness?

Mr. Borlet: I rather doubt it. I don't think we'd want to, since we're after better corrosion resistance than we've had before.

—These interviews were recorded during the 45th Annual Convention of the American Electroplaters' Society, held in Cincinnati, Ohio, in May, 1958. The editors of PRODUCTS FINISHING gratefully acknowledge the cooperation of all the people who participated.

★ ★ ★

Effective Thickness of Chromium Plate on the Sensitivity of Magnetic Particle Inspection. By W. Steindorf and B. Cohen, Wright Air Development Center, U. S. Air Force. 13 pages. Price 50 cents. Order PB 131608 from OTS, U. S. Department of Commerce, Washington 25, D. C.

Magnetic particle inspection is usually used to detect hidden cracks occurring in high-strength steel during and after chromium plating. The sensitivity of the crack-detection test is known to decrease as the thickness of the plating increases.

This research confirmed the deleterious effect of chromium plating on the sensitivity of the inspection process. A thickness of 4.5 mils was established as a practical limitation for effective crack detection. Depth of a crack is the controlling factor in adequate detection. Crack width has little effect.

Nuts and Bolts: Plating to Prevent Seizure

Results of experimental work undertaken to combat seizure problems encountered when high-chromium-content steels are used at high temperatures . . .

By W. B. STEPHENSON, JR.
Applications & Processes Engineering
Manufacturing Operation, FPLD
General Electric Co., AGT Div.
Evendale, Ohio

"What goes up must come down" goes the old saw and, in the case of aircraft engines, what is assembled must, at some time, be disassembled.

The nut and bolt, for all of its age, is still one of the most important of fastening or anchoring devices. Many are the methods devised to ensure the tightness of the nut to bolt when subjected to stresses. Less studied, but increasingly more important is the relief of thread seizure.

As motors, engines, and assemblies become more powerful and run in hotter and hotter atmospheres the problem of thread seizure becomes more acute, for several reasons: (1) materials used must be more refractory, which usually means an increase in chromium content (high-chrome-content steels are notorious for their thread-seizure tendencies. (2) higher temperatures encourage formation of oxide films on metal surfaces and thereby increase seizure; (3) as temperatures increase, the number of useful anti-seize compounds becomes more limited.

One of the most obvious remedies for the problem is to coat the bolt and nut with a material that does

W. B. Stephenson, Jr., is supervisor of the Chemical and Ceramic Engineering Unit of Applications and Processes Engineering in the Flight Propulsion Laboratory Department, Aircraft Gas Turbine Div., General Electric Co., Lockland, Ohio. Educated at Purdue University, Mr. Stephenson is a Registered Professional Engineer in Ohio. His career includes seven years as a chemical and testing engineer (H. C. Nutting Engineering and Testing Laboratories), three and one half years as a metallurgist (Wright Aeronautical Corp.), and eight years as electroplating engineer and chief chemist (Electric Auto-Lite Co.). He has been with General Electric for six years. He served as Educational Committee Co-Chairman for the A.E.S. Convention, recently held in Cincinnati, Ohio.

not oxidize in a specific application and has a certain amount of lubricity. Probably the most commonly used material is silver. Silver electroplated on the nut and bolt minimizes oxidation of the base metal and supplies a burnishable surface.

Silver plating reduces seizing, but not as much as could be desired. Accordingly, anti-seize properties of various electroplates against silver were investigated.

A number of bolts made of the high-chromium-content 400 series stainless steel were plated with various metals. The nuts were all silver plated. The bolts were inserted through a grooved block (Fig. 1) and torqued to 100 inch-pounds. The block was placed in a furnace and heated in an air atmosphere for 72 hours, removed from the furnace, and allowed to cool in air for 24 hours. The torque necessary to break loose the nut was measured and recorded. Exposure at two different temperatures, 600 and 1000 deg. F., was made using a new set of bolts and nuts each time (Table I). Tests were made with and without anti-seize compounds.

Plating Details

Preplate treatment for test samples was as follows: cathodically

Table I

ANTI-SEIZE PROPERTIES OF VARIOUS COMBINATIONS OF PLATED METALS

Plate on Nut	Plate on Bolt	Release Torque			
		After 600 deg. F. (in.-lbs.)		After 1000 deg. F. (in.-lbs.)	
		A*	B**	A*	B**
Silver	Silver	115	110	125	130
Silver	Nickel & Rhodium	85	75	105	105
Silver	Cadmium	100	110	110	120***
Silver	Nickel	85	80	75	120
Silver	Nickel & Platinum	75	95	100	120

A* These results for plates without anti-seize agent.

B** These results are for plates with proprietary "graphite-in-oil-base" compound used as an anti-seize agent.

*** Cadmium partially melted and oxidized badly.

"The selection of an improper anti-seize agent can result in extensive damage or failure in an assembly."

clean in silicated cleaner, rinse, light electropolish, rinse, strike in high-chloride nickel strike, (no strike used before cadmium plate) rinse and plate. All plates were 0.3 mil thick except the rhodium and platinum, which were approximately 0.05 mil.

Nickel was deposited from a Watts nickel bath, with no addition agents except a sodium lauryl sulfate wetting agent. Cadmium was plated from a typical cyanide bath, with no addition agents. The silver bath was a typical cyanide solution with no addition agents. The rhodium bath was a phosphate solution purchased in concentrated form. The platinum bath was also purchased in concentrated form.

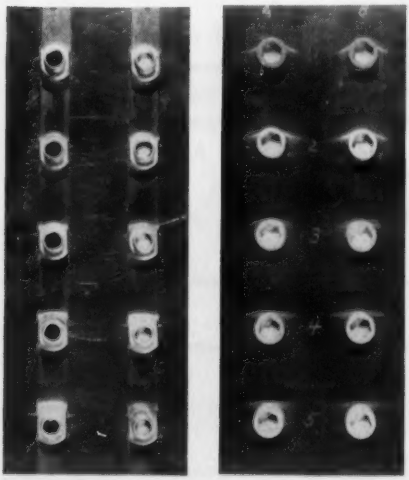


Fig. 1—Block used for measuring anti-seize properties of various electroplated metals. Nuts were all silver plated, placed in grooved blocks (left); bolts, made of 400 series stainless steel, were plated with various metals, inserted through block (right) and torqued down into the nuts. All were torqued evenly to 100 inch-pounds, then block was placed in furnace, heated, removed, and allowed to cool. Torque necessary to break loose the bolts was measured (Table I).

Conclusions

As is apparent from the results, it was concluded that the use of nickel against silver would give better release characteristics than the silver-silver combination.

Anti-Seize Compounds

The use of anti-seize compounds must be approached with caution when the assembly is to be exposed to elevated temperatures. As can be noted in Table I, drying or oxidizing of the compound could increase the seizing instead of relieving it. The selection of an improper anti-seize agent can result in extensive damage or failure in an assembly. Figure 2 shows the highly destructive reaction of a lead bearing anti-seize compound on stainless steel bolts at elevated temperatures. The lead rapidly caused intergranular failure at elevated temperatures.

Precautions

The base metal and the effect of plating on its fatigue strength should be investigated before any wholesale application of plating is undertaken. Various investigators have published data showing loss of fatigue strength by electroplating. This loss mounts in severity, roughly, in proportion to the tensile stress in the deposit. Many factors govern the stress in the plate—chemical makeup of the basic bath, impurities, temperature, current density,

Product: 99.75+% Pure
Service: 100% Sure

Every batch checked. Every can filled with a full weight of extra high quality 99.75+% Chromic Acid. Prompt delivery from ample factory and nearby distributor stocks. Why not order BFC Chromic Acid next time?

BETTER FINISHES & COATINGS, INC.

268 Doremus Avenue, Newark 5, N. J. · 2014 East 15th St., Los Angeles 21, Calif.

For more data circle 328 on Postpaid Card

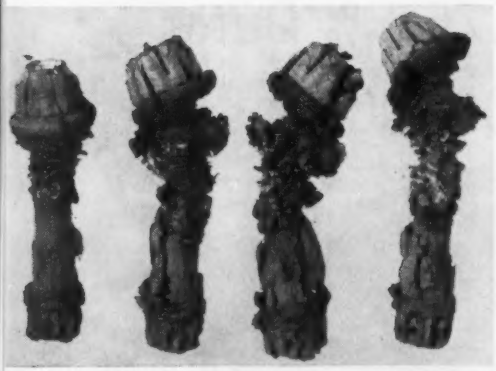


Fig. 2 — Lead-bearing anti-seize compound caused rapid intergranular failure of these stainless steel bolts at elevated temperatures. (Photo from an unpublished work by Max Grandey, supervisor of Organic Chemical Group, Applied Research Operation, General Electric Aircraft Gas Turbine Division.)

addition agents, and so on. In the case of nickel plate the stress can be varied from a high tensile stress of 70,000 p.s.i. to a compressive stress of 10,000 p.s.i. Certain addition agents may promote tensile stress while others promote compressive stress. Electroplates deposited from some baths containing addition agents are not stable at higher temperatures. This must be taken into account when the plated articles are to be used at elevated temperatures.

★ ★ ★

Plating for Space Travel

Plating the Magnesium Satellite was the topic of a talk given recently by Richard R. Studer before the Chicago Branch of the American Electroplaters' Society. Mr. Studer, who is in charge of the plating analysis section and the metallurgical laboratory of Brooks and Perkins, described metal preparation and plating procedures for finishing the magnesium-alloy satellite.

Metallurgist Studer rated preparation procedures for the 20-inch spheres highly important. Conventional buffing methods were not successful, so more complex techniques were developed. It was necessary to wet sand the spheres, then wet buff with silicon carbide to polish. After buffing, the spheres were cleaned by conventional methods developed by Dow Chemical Co., Midland, Mich.

A zincate treatment (dilute zincate bath, 180 deg. F., 2-5 minutes) followed cleaning. Then the spheres entered the plating cycle: plating in a proprietary copper plating bath; conventional silver plating; plating with 40-50 millionths of Sel-Rex bright gold.

The final bright gold plate was cleaned by gaseous discharge, using 20,000 to 30,000 volts.

Four layers of vapor-deposited materials completed the finish. These were applied in very thin (millionths of an inch) coatings, in the following order: chromium, silicon monoxide, aluminum, silicon monoxide. This final composite coating was applied for its reflectivity and infrared absorption properties.

★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★

For more data on any product advertised in PRODUCTS FINISHING use Postpaid Reader Service Cards

★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★

How many places can you use push-button touch-up?

Damage to the finish of your product happens anywhere—from your own assembly department to the final customer. With the Sprayon Self-Spraying Touch Up Tool *any* employee quickly repairs the damage *right where it happens.* Costs go down. Eye-appeal of your product and customer satisfaction go up! Sprayon goes right to your source for your own touch-up finish, custom loads the Tools for you under your own label. Exclusive Sprayon features mean even unskilled help do a factory-match job in minutes ...for pennies! It's a complete paint shop in a can!

Write for FREE touch-up folder.

Free training movie, "The Finishing Touch" (16 mm, sound, color, 11 minutes) Write for information.

SPRAYON Self Spraying TOUCH UP TOOL®

SPRAYON PRODUCTS, INC.

2077 East 65th Street • Cleveland 3, Ohio

For more data circle 329 on Postpaid Card

Keeping profits on the boil: Can solvents meet the challenge?

Today's high standards in mass production metalworking have made metal cleaning a vital arm of production. With final operations demanding more rigid specifications and with final check-out increasingly automated, parts and pieces rejected because of improper cleaning can tie up your metal-cleaning assembly line. When that happens, costs go up, profits down. Are there solvents that can keep pace with today's high-speed, top-quality production? Here's news from Dow of an important trend that can mean better production, and profits, for the industry.

Light metals fabricator switches to Perchloroethylene

. . . cuts rejects, speeds production

A major light metals fabricator recently solved an annoying cleaning problem in its production line . . . it switched to Perchloroethylene for degreasing. Result: cleaner parts first time through, rejects and reruns cut to a minimum.

Their chief engineer says: "We had not thought of Perchloroethylene as a solvent for our cleaning line setup but when we ran into cleaning troubles on the line, our lab ran tests of Per against other chlorinated solvents. We found that particularly in the case of aluminum and other white metals we got better, reject-free cleaning and faster production because of the longer condensation time. Now we've standardized on Per".

Nationwide switch to Per. A high-placed metals-cleaning theorist recently predicted: "The odds are high that a substantial part of production-line metal cleaning will be done with Perchloroethylene in the next three to five years". Nevertheless, right from the start Per has had to combat the false economy story that goes like this: "The additional heat needed for Perchloroethylene makes the degreasing operation costlier than using other standard chlorinated solvents". Actual on-the-job performance tests have shown that, in most instances, any additional heat cost is more than offset by the savings from better cleaning.

Per wins Fahrenheit war. As metal-cleaning engineers know, the secret of Perchloroethylene's higher cleaning power is in its higher boiling point, for example, 250°F. as against 189°F. for trichloroethylene . . . a distinct advantage when removing entrapped moisture in porous metals, deeply recessed parts, and blind holes.

Although honor grades can be assigned tests of various vapor degreasing solvents, Per rates "A" in performance. As a quality performer it offers: higher stability, reduced staining, lower solvents loss, higher solvency power, longer cleaning action, and the elimination of moisture. As an added bonus it comes highly recommended for aluminum cleaning. These customer benefits put Per at the head of the class.

When the vapor trails of competitive solvent claims confuse, most metal engineers consult with a company that makes many different kinds of solvents and can evaluate them all impartially. Dow, for example, will be glad to send a copy of its new 24-page brochure "Modern Vapor Degreasing".

NEW "TRI" BY DOW

. . . helps missiles make clean getaway

Premature explosion of a rocket could be an expensive blast for everyone . . . especially the taxpayer. One of America's leading rocket builders hedged against its big birds going off half-cocked because of dirty missile hardware. A fast consultation with Dow revealed this story . . .

Today's big rockets use liquid fuels that employ an oxidizer (such as liquid oxygen) to burn the fuel. The oxidizer and the fuel are kept in separate tanks and then piped into a combustion chamber where, on contact, they explode and burn. The missile trouble-shooters found that metal-cleaning materials used had left a residue, not inert to the oxidizer. Result: premature explosion. The problem: Find the right cleaning material.

Scientists at the Dow laboratory in Texas immediately began development of a new high purity Trichloroethylene for cleaning missile hardware. They conducted pioneer shock impact tests on many different solvents; and from the data developed, created HI-TRI* (high purity Trichloroethylene) to meet the exacting requirements of the missile makers.

Dow also makes three other types of Trichloroethylene . . . neutral, alkaline, and extraction . . . for all sorts of down-to-earth uses.

Dow makes many chemicals for many jobs in the metalworking industries. If you would like to know more about them, please write THE DOW CHEMICAL COMPANY, Midland, Michigan, Chemicals Sales Department 761G.

*TRADEMARK OF THE DOW CHEMICAL COMPANY

Dow Chemicals Basic to the Metalworking Industry

Chlorinated Solvents
Brominated Aliphatics • Alkalies
Ion Exchange Resins • Glycol Ethers
Preservatives • Hydrochloric Acid
Phenolsulfonic Acid • Ammonia
Industrial Glycols • Polyethylene Glycols
Polypropylene Glycols

YOU CAN DEPEND ON

DOW

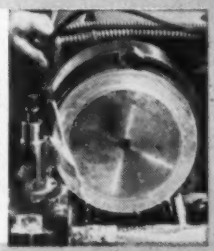
Four More Dow Chemicals *for the metalworking industry*

Chlorothene®

Dow's new, safer solvent. No appreciable fire hazard. No flash or fire point. Today's hottest cold-cleaner for electrical equipment and machinery.

Dowicide® A

Ends machinery's "Monday morning odor". Used as a preservative in soluble cutting oil, no bad odor at the machine will develop.

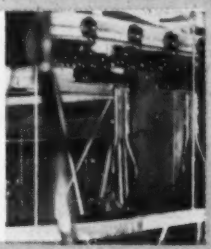


Sodium Orthosilicate

Recently improved S.O.S. by Dow is "nearly anhydrous". Metal-cleaning formulations with it cut through dirt and grease quicker than ever.

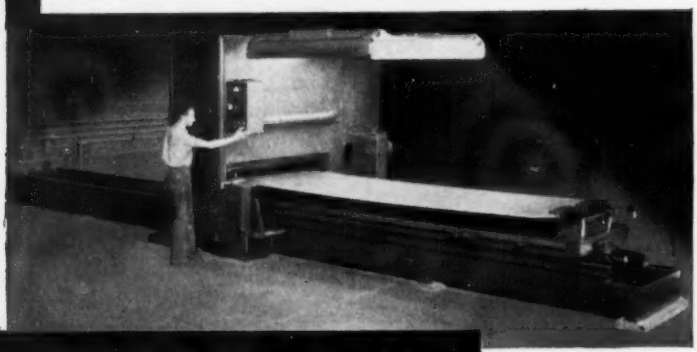
Methylene Chloride

Boil-point low, temperature high. Whenever the alloy is special and the temperature can't be too high, Dow's M.C. is the solvent of choice.



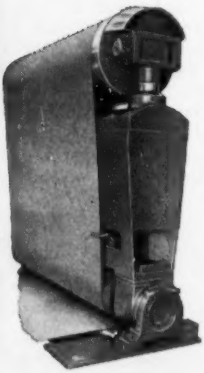
For more data circle 330 on Postpaid Card

HILL Sheet and Plate polishing machine with reciprocating hydraulic table and vertical two roll head.



A HILL Polishing Machine of *YOUR OWN* will afford you important savings...

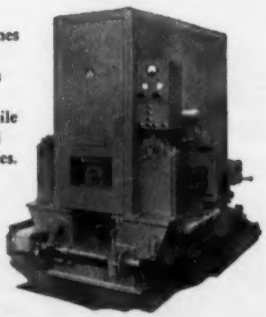
- *By eliminating mill extras.*
- *By proper finishing and prepolishing before forming.*
- *By enabling you to prepare the correct surface finish to meet each individual job need.*



IT'S MOSTLY IN THE HEAD

Two rolls accurately controlled for speeds and pressures with easy adjustment for proper tension of the endless abrasive belt. For fine finishing of all types of ferrous and nonferrous metals.

● HILL polishing machines are now saving important percentages for manufacturers supplying the dairy and sanitation fields, for automobile bumpers, engravers plates and a wide variety of other industries.



HILL Pinch Roll type with vertical two roll head for polishing strip. Can be used singly or in multiple units for line production.

The HILL ACME Company

1207 W. 65th STREET • CLEVELAND 2, OHIO

"HILL" GRINDING & POLISHING MACHINES • HYDRAULIC SURFACE GRINDERS • ALSO MANUFACTURERS OF "ACME" FORGING THREADING • TAPPING MACHINES • "CANTON" ALLIGATOR SHEARS • BILLET SHEARS • "CLEVELAND" KNIVES • SHEAR BLADES

For more data circle 331 on Postpaid Card

Ford's New Bumper Plating Line

All-new installation in Monroe, Michigan, centers about two 709-foot automatics and 81 modern generators . . .

When Ford Motor executives decided to plate bumpers, they didn't go at it in a small way. The two huge automatic machines and all the accessory equipment necessary to supply power and clean plating solutions comprised one of the largest orders for plating equipment ever placed.

The new system began to function experimentally in the spring of 1957. Production increased during the summer until full production was

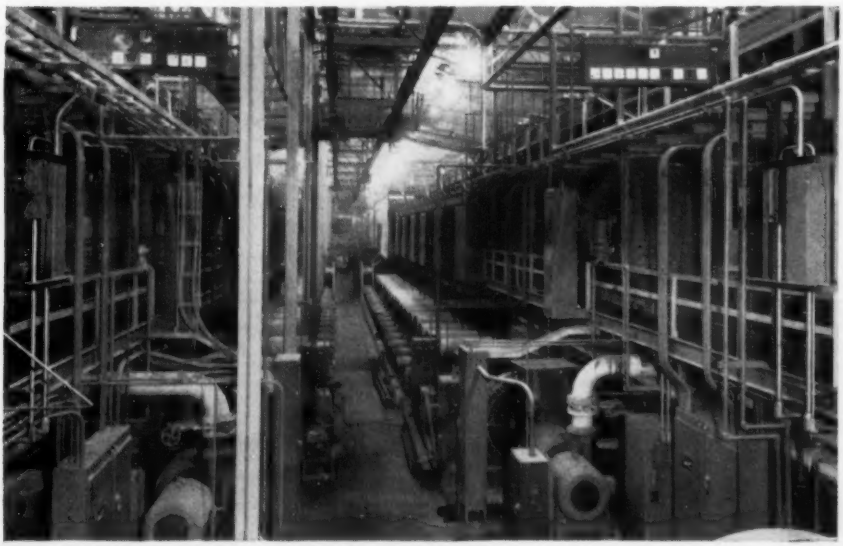


Fig. 1—A look at the heart of Ford's new plating line. This is the center aisle, with automatic plating lines on each side. Each machine is about 23 feet wide. Each machine with accessory equipment — generators, filters, and so on—takes up space about 50 feet wide; is 25 feet high; will turn out 35 racks an hour. Generators have sufficient capacity (rated output, 750,000 amps. at 4-18 volts) to plate 120 square feet per rack.

attained to meet the requirements for initial assembly of 1958 models on schedule.

Installed by Udylite Corporation, Detroit, Michigan, this plating line was planned and engineered to provide for the changes that are bound

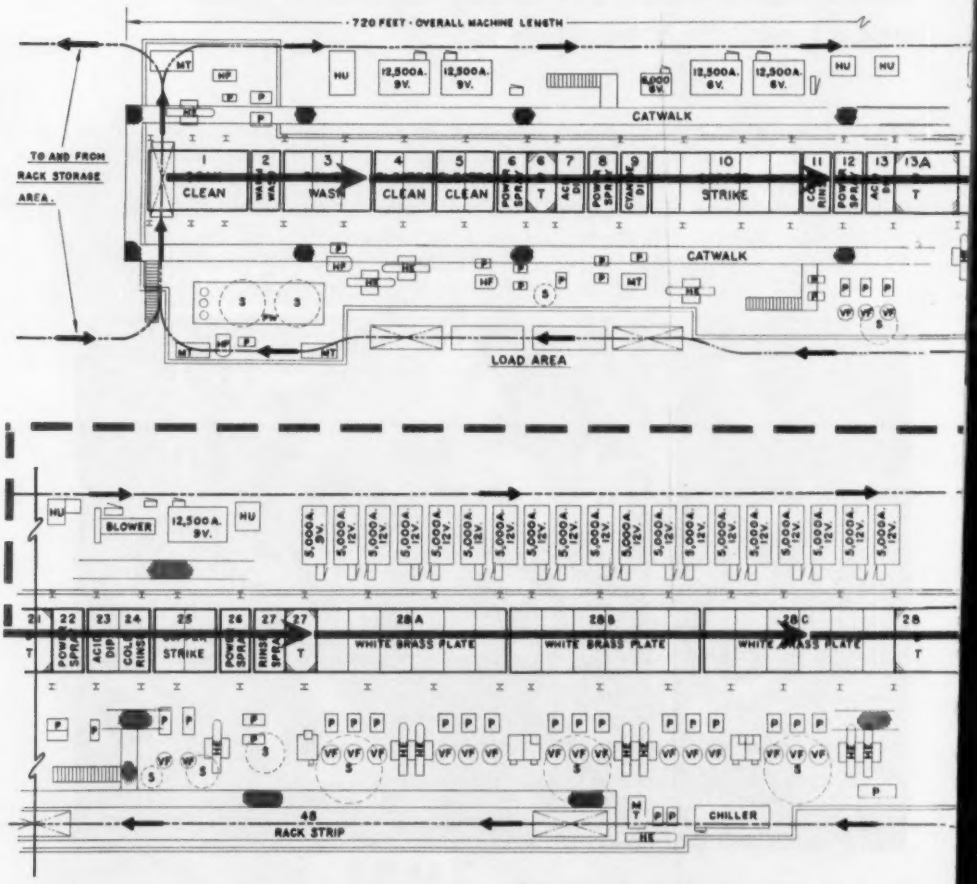
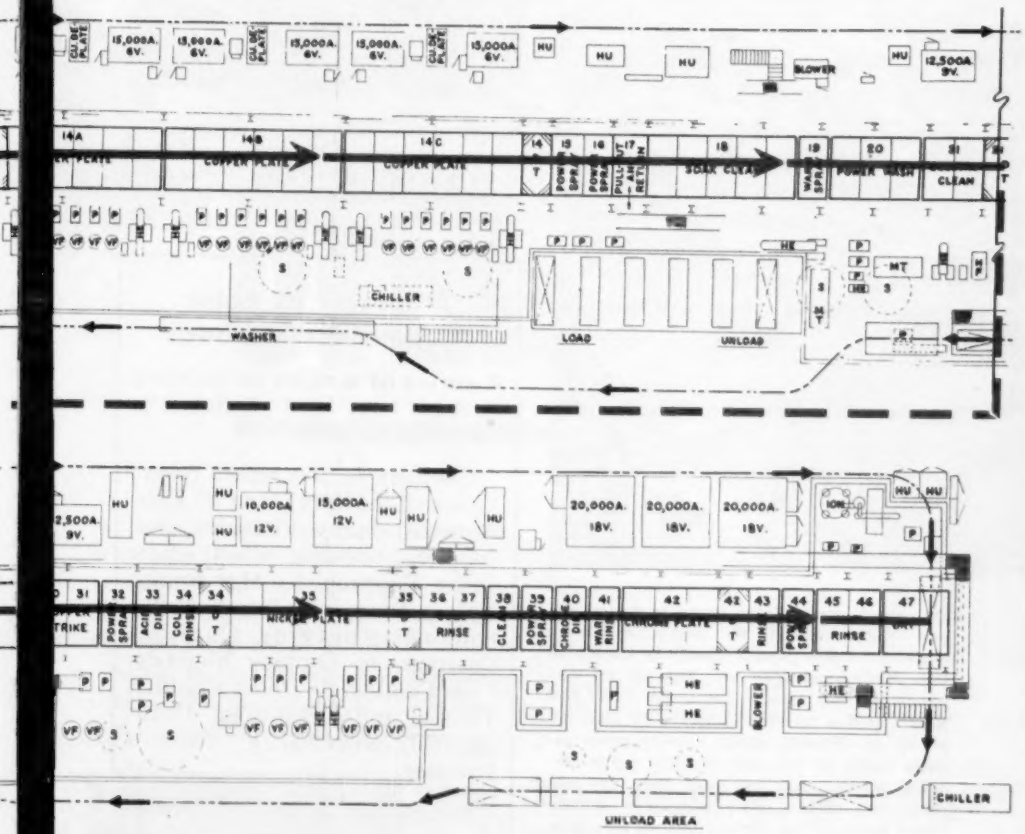


Fig. 2 — Drawing shows layout for Udylite automatic and its accessory equipment. Machine is laid out in straight line, but for reasons of space it is shown here in two sections, above and below. Color line shows travel of bumpers through plating process, while black arrows point out course of transport conveyor that carries bumpers and

to occur in future bumpers; at the same time it is a high-production plating line that does an efficient job on today's bumpers.

Basically, the new automatic plating machines are selective-cell platers, first developed by Udylite in a 60-foot model introduced in 1951. Improvements and additions are the result of experience with this and similar machines since the first of this type was introduced.

Photographs and drawings on pages 47-50 give some idea of the layout and design of Ford's giant plating line.



racks to and from loading and unloading areas. Abbreviations used are as follows: HE, heat exchanger; PW, power-wash storage; MT, mix tank; DT, drain and transfer station; P, pump; S, scrubber; HF, horizontal filter; VF, vertical filter; HU, hydraulic unit. Note the use of white brass plate between the copper and nickel electroplates (28-A,-B,-C).

(Continued on next page)

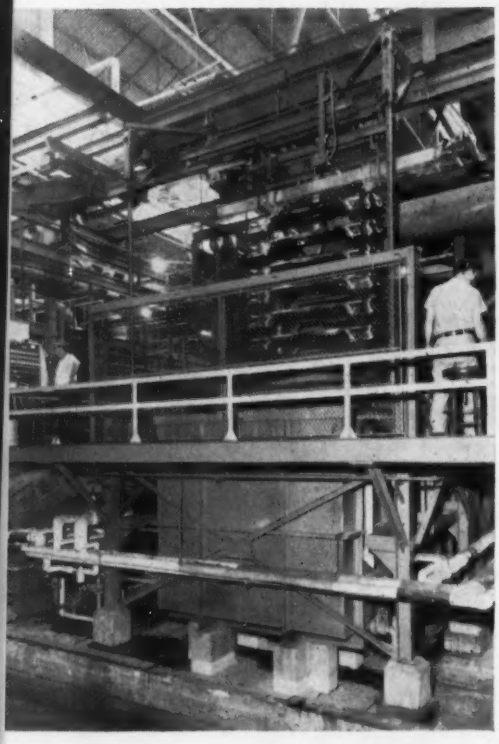


Fig. 3—A work carrier ready to lower into one of the cells of the automatic plating machine. Motor control panel is visible at left. Plating solutions are handled by 365 pumps with a total capacity of 3,037,800 g.p.h., and a series of filters with total capacity of 296,000 g.p.h. Plating tanks require water at the rate of 2700 g.p.m. Exhaust system sucks out more than 750,000 cubic feet of air every minute to remove fumes given off by various plating processes. System requires lots of heating and cooling, too: 2500 b.h.p. capacity in steam (enough to heat 650 six-room homes in zero weather); 900 tons of cooling capacity (enough cooling to air-condition 500 average six-room homes comfortably in 90-degree weather).

Fig. 4—The payoff. Workers are unloading a rack-load of plated bumpers at the end of the automatic plating cycle. (Photographs courtesy Udylite Corporation, Detroit, Mich.)

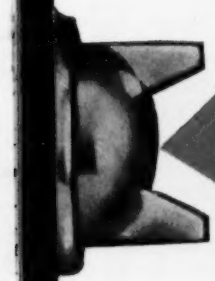
A Survey of Paint Application Methods

A series of articles on painting methods have been reprinted as a 64-page booklet.

Chapters in the report cover: 1) Use of the Spray Gun. 2) Conveyorized Spray Finishing; Automatic Spraying; Electrostatic Spray Painting. 3) Hot Spray; Airless Spraying; Steam Spray Painting; Spraying Catalyst Coatings. 4) Dipping Methods; Flow Coating. 5) Roller Coating; Tumble and Centrifugal Painting; Silk Screening; Aerosol Painting.

Reprints of *A Survey of Paint Application Methods* are available at 50 cents a copy. Write to PRODUCTS FINISHING, 431 Main St., Cincinnati 2, Ohio.

YOUR OVERHEAD IS OVER HERE



The overspray in your water curtain is a cause of overhead cost. While the overspray cannot be eliminated, the cost of removing deactivated paint from the spray booth tank and the water circulating system can be.

Periodic filtration of paint spray booth wash water prevents deactivated paint from settling to the bottom of the tank by removing the paint matte while it is floating. Recirculation of the paint in the system is prevented and water nozzles remain foul-free. Such maintenance costs are eliminated.

Only Delpark offers filtration for paint spray booth wash water. A Delpark field engineer will be glad to show you how you can save on operating and maintenance costs.

Delpark

PAINT SPRAY BOOTH WATER FILTERS

. . . FIRST in Filtration Advancement

Backed by more than 40 years experience in Industrial Filtration

INDUSTRIAL FILTRATION COMPANY • 166 INDUSTRIAL AVE., LEBANON, IND.

For more data circle 332 on Postpaid Card

A "Hi-Fi" Painting System

New finishing room with automatic spray equipment cuts rejects, speeds painting of parts for RCA record players . . .

An automatic spray painting machine and other finishing equipment recently installed in the Cambridge, Ohio, plant of RCA Radio and "Victrola" Division have cut rejects to less than one per cent, increased production and saved materials at the same time.

The DeVilbiss Company installed the equipment, which is specially engineered to paint component parts for "Victrolas." The modernized finishing department includes an eight-foot water wash spray booth, drying oven, air-replacement unit, flash-off tunnel and a dust-and-dirt-free enclosure to house loading and painting operations.

The low reject rate in this finishing installation is credited to the uniform coverage produced by the automatic spray guns; a careful cleaning and degreasing process; and to the elimination of dust and dirt in the finishing room by an air-replacement system that filters incoming air.

Loading the Conveyor

Assembled parts, already degreased and cleaned, ready to be painted, arrive in the loading room through a dust-free tunnel. The tile-floored loading room is clean and well lighted. One operator unloads parts from the conveyor that brings them from the cleaning operations while two others mask the parts and load them on the painting conveyor.

Spraying

The parts enter the spray area on alternate high and low workholders. If motorboards and turntables are being sprayed — and they are among the principal parts to be sprayed by the automatic painting equipment—the motorboards are attached to the high workholder and the turntables are held by the lower workholders. Both parts are sprayed simultaneously.

As the parts approach the painting stations, they trigger mechanisms that actuate the spray guns. If a workholder is empty, the guns don't spray.

At the first two spray stations, the motorboards are coated. Two guns at the first station spray the flat areas of the top as the board rotates past. Then one gun at the second station sprays the protruding area on the cone that supports the stabilizer arm. Meanwhile, two guns at the lower level coat the turntables.

The motorboards are sprayed a metallic bronze and the turntables an antique white. Although the two parts are painted within inches of one another, neither is marred by

Fig. 1—Loading parts on the automatic spray machine conveyor. Operator at left unloads the motorboards from the incoming conveyor. Two operators at right mask parts as needed, then load them on spray painting conveyor, which takes parts past automatic guns.

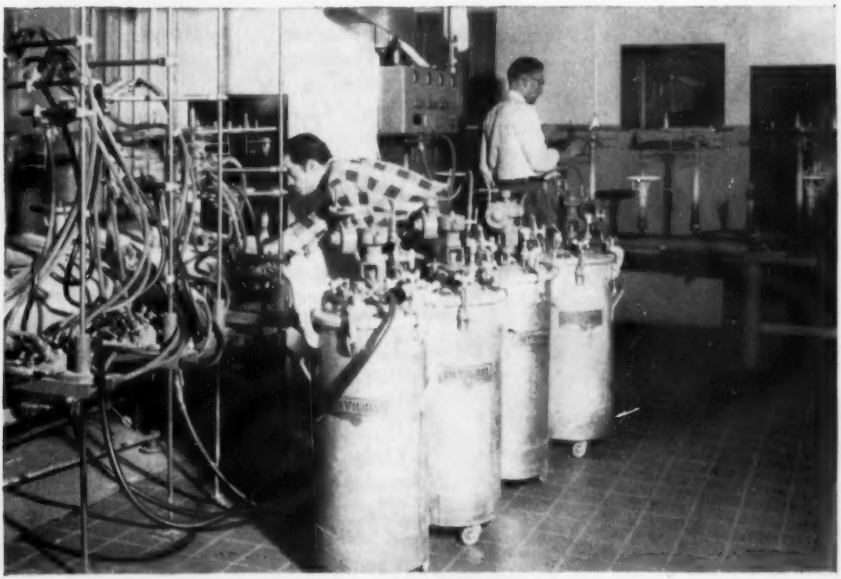


Fig. 2—Overall view of the finishing room. Automatic spray guns at left are set up to spray motorboards and turntables simultaneously, in two different colors. Air-replacement plenum in ceiling of this room helps to keep air-borne dust to a minimum.

"The air replacement system . . . helps to assure dust- and lint-free finishes."

overspray from the other painting operation.

Because the motorboards have a number of parts already attached, it is imperative that no paint reach the underside. The DeVilbiss automatic spray system is engineered and installed so that all paint is confined to the upper side.

Adjustable gun arms give the machine the flexibility to handle four types of motorboards of different sizes, two types of turntables, two types of stabilizer arms and tone arms.

RCA keeps spare gun-mounting fixtures on hand. This allows the operators to prepare for painting various types of parts while the machine is in operation.

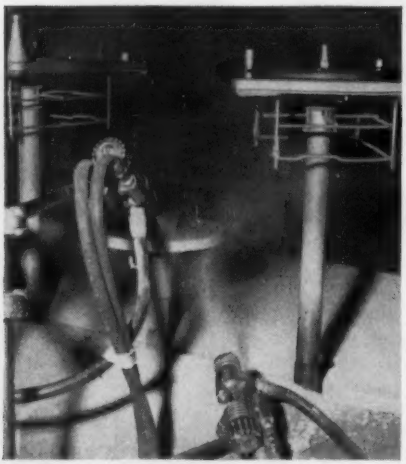


Fig. 3—Two DeVilbiss spray guns coat a turntable on top and bottom with antique white synthetic enamel. Directly to the left of this operation, bronze metallic enamel is being sprayed on the motorboards. (Photos courtesy The DeVilbiss Company, Toledo, Ohio.)

Paint Supply

Paint is supplied to the automatic guns from fifteen-gallon containers, which are mounted on casters to make it easy to move them to and from the paint-mixing room. A hose cleaner speeds clean-up of guns and fluid lines at the end of a production run.

Drying

After the parts have been sprayed, they travel through a flash-off area and then into a gas-fired convection oven for a 20-minute drying period. From here they go to the cooling and unloading area.

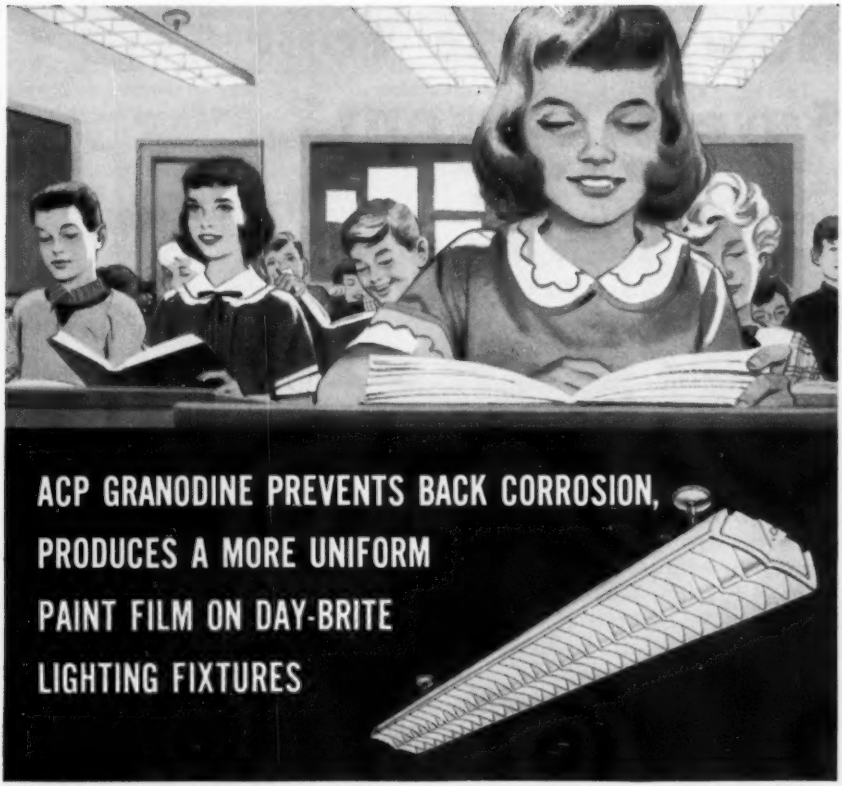
Air Make-Up System

The air-replacement system installed on the second floor above the spray area helps to assure dust- and lint-free finishes. It keeps the paint room under slight pressure by supplying slightly more air than is being taken out. This positive pressure pushes air out of doors and openings, prevents dirt from entering the spray area.

The air-replacement unit pulls in 12,000 c.f.m. of air from the outside, filters and heats it if necessary, blows it into the finishing room through plenums in the ceiling. Only 8200 c.f.m. is expelled by the water-wash spray-booth exhaust. The remainder of the air flows out of the spray area through doors and openings.

★ ★ ★

Jaywalking was costly in the U. S. last year—2,600 were killed.



ACP GRANODINE PREVENTS BACK CORROSION, PRODUCES A MORE UNIFORM PAINT FILM ON DAY-BRITE LIGHTING FIXTURES

Especially adapted to high-level school and office lighting, the Luvex is a typical example of the highly efficient lighting fixtures produced by Day-Brite Lighting, Inc. One of the features of these outstanding light sources is the use of a zinc phosphate coating to provide a better paint bond and prevent underpaint corrosion. ACP GRANODINE was selected for the job because it proved superior to other methods of prepaint treatment. The process is carried on in a 5-stage system which includes preclean, water rinse, the GRANODINE treatment, water rinse, and final acidulated rinse. It takes only minutes to complete the treatment and to provide a uniform, long-lasting finish for the lighting fixtures.

Perhaps you have a problem of bonding paint to metal, of improving corrosion resistance, of preventing impact damage. Our technical people will be glad to discuss it with you and give you the full story of ACP chemical prepaint treatments. To have an ACP man call on you, write us at Ambler.

Day-Brite and Luvex are registered trademarks of Day-Brite Lighting, Inc. GRANODINE is a registered trademark of Amchem Products, Inc.

Amchem Products, Inc. Ambler 14, Pa.

Formerly AMERICAN CHEMICAL PAINT COMPANY

CHEMICALS ACP PROCESSES

DETROIT, MICH. • ST. JOSEPH, MO.
NILES, CALIF. • WINDSOR, ONT.

New Chemical Horizons for Industry and Agriculture

For more data circle 333 on Postpaid Card

How Safe Is Your Safety Solvent?

How to be sure that the solvents used in cold degreasing tanks are as safe to plant and personnel as they are easy to use . . .

By PAUL GROTTS
Director of Research
Octagon Process, Inc.
Staten Island 1, N. Y.

In August, 1953, a welder's torch set fire to oil in the General Motors hydramatic transmission plant in Livonia, Michigan. The fire that swept through the plant destroyed the building, took two lives and robbed the company of many months production.

From that day on, every industrial plant has been much more conscious of using materials that reduce fire hazard wherever possible.

One way that this interest has shown up is in the increasing use of cold degreasing safety solvents — solvents that have high flash points, minimum toxicity. These solvents, properly formulated, will meet most requirements for degreasing prior to finishing.

Users of cold degreasing solvents have found that these cleaning materials give other benefits in addition to their popularity with the plant safety chief. For one thing, no special equipment is needed — any tank that is big enough to accommodate the parts being cleaned will do the job. No heat is required. The solvent is always ready to use. And recovery rate is high.

Like every other material entering the finisher's plant, safety solvents should be examined to make sure they have the qualities desired. Two major qualities must be examined in evaluating the "safe" in safety solvents: toxicity and flash point.

Evaluating Toxicity Ratings

The most widely used method of comparing toxicity is the M.A.C. rating method set up by the American Conference of Government Industrial Hygenists. The M.A.C. rating for a given solvent is expressed in terms of the vapor concentration (in parts per million) that a person can tolerate. The solvent at its safe rating is such that it can be used without ill effects for a normal eight-hour day, five days a week. The higher the M.A.C. rating, the safer the solvent.

Most safety solvents fall in the 325-450 range, and can be used safely indoors under normal ventilating conditions.

Evaluating Flash Point

Many degreasing solvents with high flash points deteriorate with

time. Their flash points are lower after standing. This is dangerous, because you think you have a tank that's safe but in reality it should have a red label on it.

The high-flash "masking" solvents in an improperly formulated solvent evaporate rapidly on exposure to the atmosphere. This is evident in Fig. 1, where comparative solvent loss is shown over a period of time. The safety factor in fast-evaporating solvents "A" and "B" shown has gone out through the exhaust stack. They aren't safety solvents after this has happened.

A Simple Flash-Point-Performance Test

A simple test will show the solvent user what can be expected of a solvent in regard to flash point. A solvent that passes this test reduces solvent-caused fire hazards to a minimum. *Only a qualified laboratory technician should attempt this test.*

1. Pour a measured amount of solvent into a beaker or wide-mouthed jar. Try to ignite the solvent with a match, cautiously. Any safety solvent should be intact at this stage of the test and should therefore extinguish the flame.
2. Repeat the test after the solvent has stood in the open vessel for three days. The solvent now may not extinguish the match as quickly, or it may even flash.
3. Repeat the same test after the solvent has remained in the open vessel for six to nine days. If, at this point, the solvent still does not support combustion, the product being tested has good flash-point stability.

Low Flash Points Affect Cleaning Efficiency

The usefulness of a solvent with a flash point that drops rapidly is reduced in other ways. Loss of certain solvents from the formula results in reduced cleaning ability. Drying time increases—this is espe-

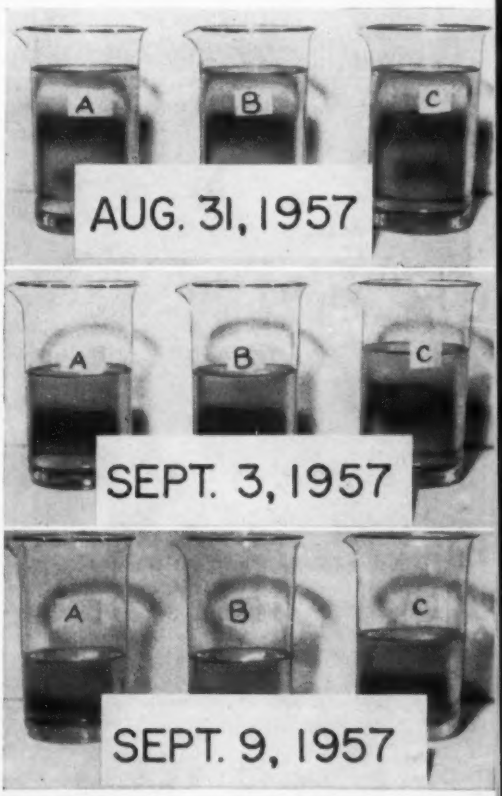


Fig. 1—A typical flash-point stability test. Top photo shows the beginning of the test. Middle photo, after three days, shows that solvents "A" and "B" have evaporated more quickly than solvent "C." Lower photo shows completion of test on ninth day. Solvent "A" has lost enough of its protective solvents to be close to the red-label code. Even solvent "B" has lost enough to be somewhat dangerous.

cially noticeable in conveyorized installations. It's much more hazardous to redistill solvents that have a lower flash point. Introduction of low-flash-point solvents into a still originally set to distill high-flash-point solvents can result in a serious explosion. And, of course, solvents that evaporate rapidly from the tank are lost, cannot be recovered, and thus cost more in the long run.

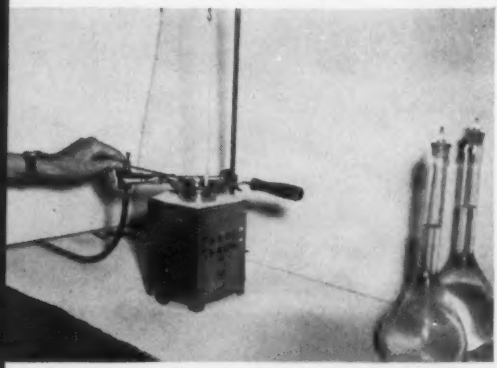


Fig. 2—Solvent "C" being tested for flash point using the Cleveland Open Cup, according to A.S.T.M. test method D-92-56.

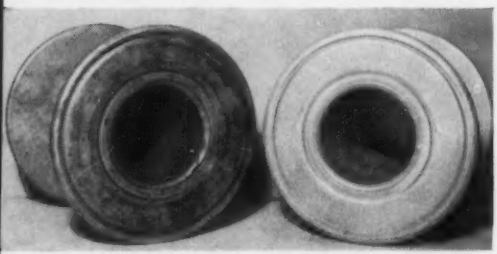


Fig. 3—Cold degreasing did a good job of removing oils and dirt from this part, shown before degreasing on the left. (Photos courtesy Octagon Process, Inc., Staten Island, N. Y.)

Metal Cleaning Bibliographical Abstracts. 1957 Supplement. A.S.T.M. Special Technical Publication 90-D. 44 pages. Copies of this book may be obtained from the American Society for Testing Materials, 1916 Race St., Philadelphia 3, Pa. Price, $2.00.

These abstracts are designed to make the published data on metal cleaning readily available to persons concerned with the production, finishing, and maintenance of metal products. This publication has been made possible by the efforts of Jay C. Harris, Monsanto Chemical Co., in collecting, arranging and indexing the references.

This book contains over 225 new references, including coverage of cleaning by ultrasonic means; cleaning stainless steels, and titanium; cleaning semi-conductors such as germanium.

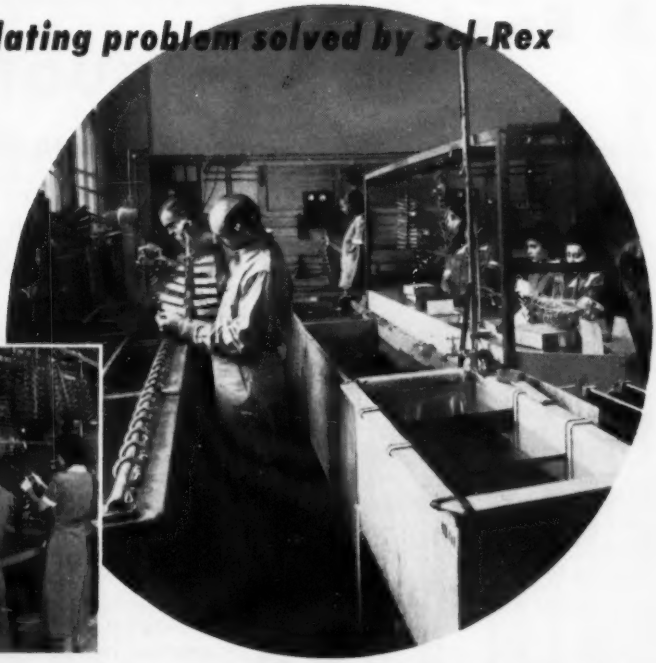
★ ★ ★

ADVANCED MATERIALS TECHNOLOGY. Publication by **The Carborundum Company** features technical information on materials to meet severe or unusual conditions in processing or operation, such as extreme heat, abrasive action, corrosion, or other problems beyond the capabilities of conventional materials.

The first issue gives data on a new self-bonded KT Silicon Carbide which provides "high strength" and other outstanding properties up to 4000 deg. F. "Thermal Shock Problems" are treated; a heating element is discussed and some of the new uses of zirconium are explained. Another feature is a question and answer treatment on ceramic-to-metal bonds.

"Advanced Materials Technology" published by the Research and Development Division at Niagara Falls, N. Y. is the third of Carborundum's new technical publications. The others are "More Zr Facts" by the Carborundum Metals Company, Akron, New York; and "Carborundum's Refractories" by the Refractories Division, Perth Amboy, New Jersey. All of the publications are available upon request to the respective divisions.

Another plating problem solved by Sel-Rex



Racking of units prior to still plating in huge Spectranome Plating Company plant in New York City.

"SEL-REX HELPED US LAND OUR BIGGEST REGULAR CUSTOMER"

Says Charles Campana, President, Spectranome Plating Company, Inc.

When one of the world's largest pen manufacturers decided to produce a quality Gold plated line, they requested plated samples from dozens of job shops throughout the country. Spectranome knew they had to submit a vastly superior plated sample to land the order, with such fierce competition. As he had done for many years whenever a plating problem arose, Mr. Campana called on Sel-Rex. The samples produced in the pilot plant specifically designed for this job landed the contract.

These facilities were expanded to handle mass-production volume—tanks, rectifiers, filters, a special Sel-Rex Gold Plating Process. According to Mr. Campana, "This custom-designed set-up has consistently been one of our most profitable operations."

The largest precious metals platers in the country, Spectranome's facilities also include an entire division—Sel-Rex designed and equipped—for precision plating of electrical, electronic and missile components. Both divisions boast the most modern production and testing equipment for quality plating with Sel-Rex Precious Metals Processes, including: Sel-Rex Bright Gold, Rhodex compressively stressed Rhodium, Acid Bright Gold, Silvrex Bright Silver, and Platanex Industrial Platinum Process.

Whatever your plating problem—precious metals, power, equipment or procedures—Sel-Rex Representatives are trained to "Custom-Engineer" solutions to our mutual profit. Send for FREE technical data and other case histories and see for yourself... we may have solved *your* problems last month.

Sel-Rex®

SEL-REX CORPORATION

NUTLEY 10, NEW JERSEY

OFFICES: DETROIT, CHICAGO, LOS ANGELES

Manufacturers of Exclusive Precious Metals Processes, Metallic Power Rectifiers, Airborne Power Equipment, Liquid Clarification Filters, Metal Finishing Equipment and Supplies

For more data circle 334 on Postpaid Card

A Fast Finish

Electrostatic spray installation automatically paints over 500 fluorescent fixtures per hour . . .

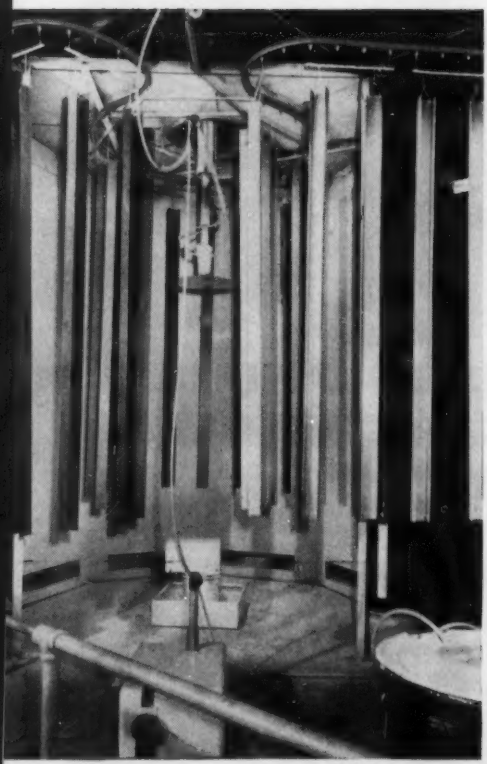


Fig. 1—Conveyor carries nine fluorescent fixtures a minute past this electrostatic painting disc. The parts enter on the left, leave on the right with an even film of paint. (Photo courtesy Chainveyor Corporation, Los Angeles.)

An electrostatic spray installation and a conveyor combine to finish more than 500 flourescent fixtures an hour in the Memphis, Tennessee plant of Light & Power Utilities Corporation.

The 300-foot-long conveyor, a product of Chainveyor Corporation, Los Angeles, bends and twists through a series of curves, dips and turns as it carries the fixtures through a continuous finishing process that includes cleaning and phosphatizing as well as painting and baking.

Paint is applied by a Ransburg No. 2 reciprocating disc (Fig. 1). Paint is pumped to the surface of this highly charged (100,000 volts) whirling disc. It flies off the edge of the disc in a fine spray that travels through the electrostatic field set up between the disc and the grounded parts on the conveyor. As the parts move by, paint is attracted to them and deposits in an even film, with very little overspray. Nine fixtures a minute pass the spinning disc, receive a coat of paint, and go on to the bake oven.

The system is producing a uniform and attractive finish at high production rates in a continuous automatic process.

Announcing...

3 NEW WAYS TO CUT YOUR BUFFING AND POLISHING COSTS

STEVEN S 58 L LIQUID TRIPOLI

An outstanding *all purpose* liquid tripoli suitable for buffing all non-ferrous metals including die castings, copper plate, brass, and aluminum. Your *best* bet for low-cost, high volume metal finishing.

STEVEN S "NO-NUBBIN" FALSE BOTTOMS

Now . . . most STEVENS compounds are available in "NO-NUBBIN" false bottom containers. These money-saving packages are supplied in three sizes, 2″x2″ – 2″x4″ – 2″x6″ – and mean big economy in your buffing and polishing operations.

STEVEN S 27 L LIQUID TRIPOLI COLORING

The *best* liquid tripoli coloring on the market today, new STEVENS 27 L gives very high color and is readily cleaned. Another big advantage in 27 L Liquid Tripoli is its consistency in viscosity.

USE COUPON BELOW TO GET MORE INFORMATION ON THESE NEW STEVENS PRODUCTS

BRANCHES:

BUFFALO CHICAGO DETROIT CLEVELAND
DAYTON NEW HAVEN SPRINGFIELD (OHIO)

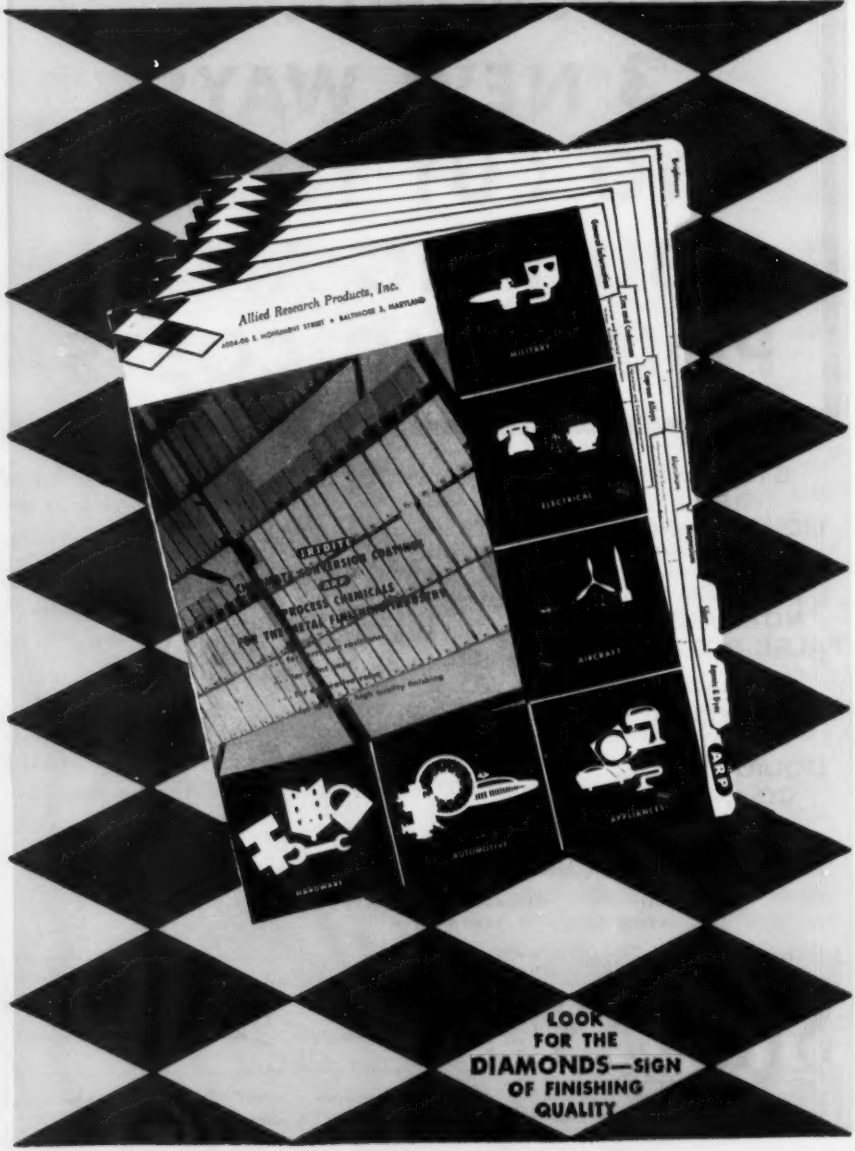
FREDERIC B. STEVENS INCORPORATED
YOUR METAL FINISHING SUPERMARKET
DETROIT 16, MICHIGAN

FREDERIC B. STEVENS, INC., 1800 18th St., Detroit 16, Michigan
Tell Me More About:
☐ 58 L Liquid Tripoli
☐ 27 L Liquid Tripoli Coloring
☐ "No-Nubbin" False Bottoms
☐ Have a Stevens Representative Call

NAME _____ TITLE _____
FIRM _____
ADDRESS _____ CITY _____ STATE _____

For more data circle 335 on Postpaid Card

Useful Technical Data File . . .



on FAMOUS ALLIED PRODUCTS

For Finishing, Cleaning and Protection of Metals

Here's a wealth of technical information gathered as a result of extensive product research, development and use throughout the world. This comprehensive file explains and describes all products, gives applicable metals, appearance of film, purpose of products, typical applications, U. S. Government specifications, method of application and test results.

IRIDITE® The finishing industry's most complete line of chromate conversion coatings. Give peak corrosion resistance, a lasting paint base and widest choice of appearance in decorative finishing on

ZINC AND CADMIUM ALUMINUM CUPROUS ALLOYS MAGNESIUM SILVER

ARP® BRIGHTENERS Liquid and powder materials for barrel, still or automatic ZINC and CADMIUM plating. High chemical stability provides maximum quality at minimum cost. Liquids available in AUTO-FLO-PAK for economical automatic dispensing.

ARP® PROCESS CHEMICALS

WETTING AGENTS DETERGENTS DYES FOR IRIDITE FILMS

ARP® CLEANERS and DEOXIDIZERS Specially formulated to provide maximum performance with IRIDITE coatings on aluminum and zinc die castings.

IRILAC™ New method of protection incorporating corrosion inhibitors in a water-soluble polymer base which dries to an extremely thin, tough, durable coating —clear in color. Does not chemically affect base metal or any post treatments. Used as a protective treatment alone or to enhance value of post treatments.

See listing in your phone book under "Plating Supplies" for office of the Allied Field Engineer in your area, or write direct.

Your Finishing Problems Invited

Our Research and Development Department will be happy to work with you to develop a finish for your needs.

Allied Research Products, Inc.

4004-06 E. MONUMENT STREET

BALTIMORE 5, MARYLAND

***Manufacturers* of IRIDITE®, IRILAC™, ARP® Brighteners and Plating Chemicals — West Coast Licensee: L. H. Butcher Co.**

For more data circle 336 on Postpaid Card

Reprints Available

Limited quantities of reprints of the following articles from PRODUCTS FINISHING are available to readers without charge.

Aluminum Siding Painted and Formed from Continuous Coil Stock.

Automatic Polishing Speeds Production of Aluminum Trim Shapes.

Automobile Bumper Plating.

Barrel Tumbling: How to Get Best Results.

Bright Silver Plating.

Brighter Prospects for Brass and Copper.

Characteristics of Chlorinated-Rubber-Based Finishes.

Coated Abrasives Speed Polishing.

Compact System for Painting Metal Cabinets.

Effect of Plating Thickness on Screw Thread Dimensions.

Finishes Tested by Sun and Weather.

Finishing Facilities for a Modern Railroad.

Finishing Floor Registers and Grilles at The Auer Register Company.

Finishing Metal Furniture to Withstand the Acid Treatment.

Finishing Refrigerators With Hot Sprayed Enamel.

High Production and Safety Planned Into Sheet Metal Finishing System.

How the Paint Warmer Aids Finish Application and Quality.

How to Select and Use Contact Wheels.

Job Shop Uses Electrostatic Spray.

Low-Pressure Hot Spray Painting.

Metal Deposits From Gases.

Plastisol Coating of Plating Racks and Tanks . . . A Job for Specialists.

New Markets and Techniques for Precious Metal Electroplates.

Plastisol Coating of Wire Products.

Plating and Paint Decorating Zinc Die Castings.

Plating Die Castings in Conveyorized Plant.

Points to Remember in Using Abrasive Belts for Finishing.

Pre-Cut Masks Speed Tractor Production.

Recover That Plating Waste!

Tiny Electronic Parts Tumbled to Precision Finishes.

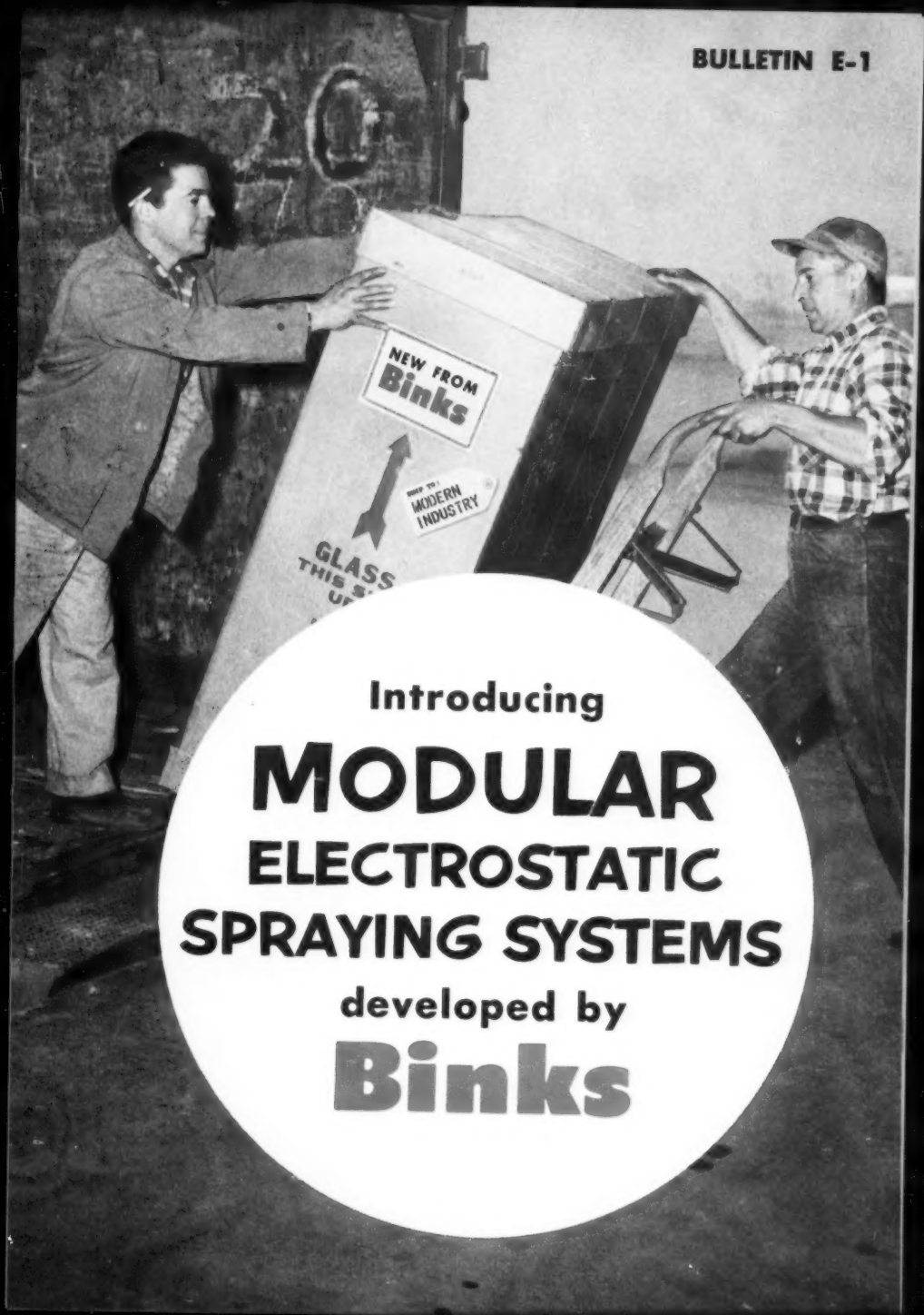
Unique Oven Installation Boosts Production of Blinds.

Westinghouse Uses Time Study to Increase Output.

Write on company letterhead to:

PRODUCTS FINISHING, 431 Main Street, Cincinnati 2, Ohio

BULLETIN E-1

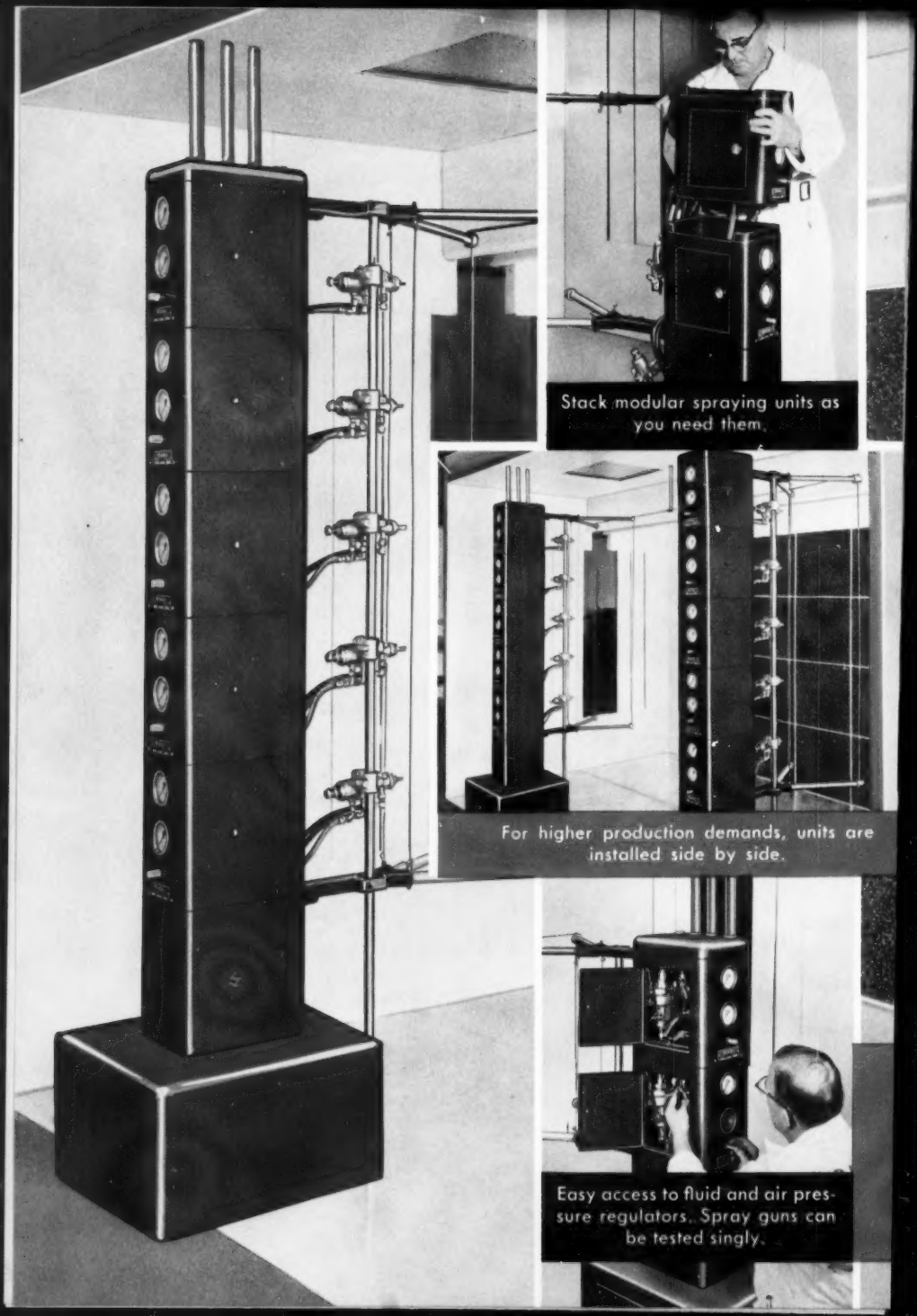


Introducing

MODULAR ELECTROSTATIC SPRAYING SYSTEMS

developed by

Binks



Stack modular spraying units as you need them.

For higher production demands, units are installed side by side.

Easy access to fluid and air pressure regulators. Spray guns can be tested singly.

Binks Modular Electrostatic Spraying Systems

FIT YOUR PRESENT FINISHING LINE WITHOUT COSTLY ALTERATION

Binks-developed Electrostatic Spraying Systems fit your present finishing line without expensive spray booth alteration or replacement. Spraying units are MODULAR, self-contained equipment packages. You start with just the units you need—add or subtract units as production requirements change.

These features can reduce your finishing costs

1. Increased coverage per gallon of finish. Overspray is reduced. Finishing efficiency is increased.

2. Fewer finishing rejects. Attraction of finishing materials to your product insures unusual coverage uniformity—even for odd shapes.

3. Drastic reduction in spray booth clean-up. Finishing materials go on the product—not on the spray booth and exhaust system.

4. Low first cost on equipment. Modular, self-contained spraying units permit custom installations without special engineering.

5. Easy installation. After assembly, simple air, fluid and power connections put you in business. Electrostatic grid is a part of the modular package—requires no attachment to the spray booth.

6. Fast easy maintenance. Entire system easily removed from spray booth as a unit for clean-up. All parts are standard for prompt maintenance or replacement.

COMPLETE STORY GIVES YOU MANY MORE COST-SAVING ADVANTAGES

Contact your nearest Binks Branch Office, Binks representative or industrial distributor. Learn how Binks Electrostatic Spraying Systems can save you time, finishing materials and money—plus the many unique installation, operation and maintenance features which make these units quickly adaptable to your present system.

Ask about our spray painting school.
Open to all...NO TUITION...covers all phases.

Binks

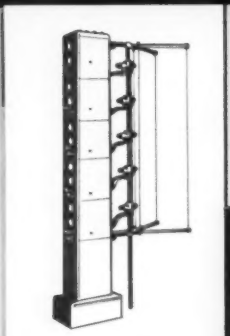
EVERYTHING FOR SPRAY PAINTING

SPRAY GUNS

SPRAY BOOTHS

NATIONWIDE SERVICE

Binks Manufacturing Company
3118-40 Carroll Ave., Chicago 12, Ill.



MODULAR ELECTROSTATIC SPRAYING SYSTEMS

PAINT SPRAY GUNS

SPRAY GUN NOZZLES

SPECIAL SPRAY GUNS

AIR COMPRESSOR

SPRAY BOOTHS

MATERIAL HANDLING PUMPS

EXHAUST FANS

NATIONWIDE SERVICE

OIL & WATER EXTRACTORS

FLUID PRESSURE TANKS

AUTOMATIC EQUIPMENT

HOSE & ACCESSORIES

SPRAY PAINTING SCHOOL

TODAY, MORE THAN EVER—

Binks means everything

FOR SPRAY FINISHING

While Binks Electrostatic Spraying Systems are the one best answer for many finishing applications, they are by no means a universal solution.

Because Binks makes a complete line of both standard and electrostatic spraying equipment, you can be sure of truly objective analysis and engineering help on your finishing problems.

Binks research department will, without cost or obligation, test-finish *your* products using both standard and electrostatic techniques. You will receive a detailed report showing the costs and production rates you can anticipate. As a further service, Binks also operates a tuition-free school to train finishing department personnel in all phases of equipment operation.

For this assistance, or any other information about Binks complete line of spray finishing and coating equipment, just call your nearest Binks Branch Office or write direct.

8405 LITHO IN U.S.A.

Binks

EVERYTHING FOR SPRAY PAINTING

Binks Manufacturing Company

3118-40 Carroll Ave., Chicago 12, Ill.

REPRESENTATIVES IN PRINCIPAL U. S. AND CANADIAN CITIES
SEE YOUR CLASSIFIED DIRECTORY

Third National Coated Abrasive Machinery Show in Review

Industrial men inspect and test new developments by 50 manufacturers at Behr-Manning plant, Troy, N. Y.

By EZRA A. BLOUNT
Editor

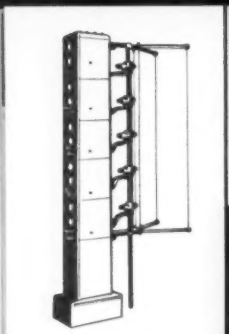
The importance of coated abrasives as a basic industrial tool was emphasized during the week of June 9-13 when 150 new abrasive machines were viewed and tested by several thousand industrial production men from all parts of the United States and half a dozen foreign countries. The week-long show was officially opened on June 9 with a press preview for industrial editors and a ribbon-cutting ceremony performed by New York's Governor W. Averell Harriman.

The occasion was the 3rd National Coated Abrasive Machinery Show, sponsored by Behr-Manning Co., a division of Norton Company, at its new $1,000,000 Product Engineering building. The abrasive manufacturer acted as host to the machinery industry, inviting machine manufacturers to demonstrate developments of the past two years.

Production men from all phases of the metalworking, finishing and other industries, brought actual workpieces, using them to subject the new machines to comparative testing of their grinding and polishing performance. Among show visitors were large groups of supervisory men from grinding and polishing departments of large automobile manufacturers, aircraft firms, government arsenals and others.

Dirck Olton is manager of the Product Engineering Department which developed the show. John J. Durnan was show manager.

Mr. Olton, in welcoming visitors to the show, pointed out that the purpose of the exhibit was to keep industry abreast of the newest developments in the use of coated abrasives for grinding and finishing. He further remarked that the coated abrasive field is a relatively new field, and there is a tremendous educational job to be done to teach industry how to use this technique advantageously. Behr-Manning makes its contribution to this educational effort by conducting these shows, and by providing field engineers to work with manufacturers in applying the coated abrasive method to manufacturing problems. These field engineers are supported by a central engineering staff of experts in various fields.



MODULAR ELECTROSTATIC SPRAYING SYSTEMS

PAINT SPRAY GUNS

SPRAY GUN NOZZLES

SPECIAL SPRAY GUNS

AIR COMPRESSOR

SPRAY BOOTHS

MATERIAL HANDLING PUMPS

EXHAUST FANS

NATIONWIDE SERVICE

OIL & WATER EXTRACTORS

FLUID PRESSURE TANKS

AUTOMATIC EQUIPMENT

HOSE & ACCESSORIES

SPRAY PAINTING SCHOOL

TODAY, MORE THAN EVER—

Binks means everything

FOR SPRAY FINISHING

While Binks Electrostatic Spraying Systems are the one best answer for many finishing applications, they are by no means a universal solution.

Because Binks makes a complete line of both standard and electrostatic spraying equipment, you can be sure of truly objective analysis and engineering help on your finishing problems.

Binks research department will, without cost or obligation, test-finish *your* products using both standard and electrostatic techniques. You will receive a detailed report showing the costs and production rates you can anticipate. As a further service, Binks also operates a tuition-free school to train finishing department personnel in all phases of equipment operation.

For this assistance, or any other information about Binks complete line of spray finishing and coating equipment, just call your nearest Binks Branch Office or write direct.

8405 LITHO IN U.S.A.

Binks

EVERYTHING FOR SPRAY PAINTING

Binks Manufacturing Company

3118-40 Carroll Ave., Chicago 12, Ill.

REPRESENTATIVES IN PRINCIPAL U. S. AND CANADIAN CITIES
SEE YOUR CLASSIFIED DIRECTORY

Third National Coated Abrasive Machinery Show in Review

Industrial men inspect and test new developments by 50 manufacturers at Behr-Manning plant, Troy, N. Y.

By EZRA A. BLOUNT
Editor

The importance of coated abrasives as a basic industrial tool was emphasized during the week of June 9-13 when 150 new abrasive machines were viewed and tested by several thousand industrial production men from all parts of the United States and half a dozen foreign countries. The week-long show was officially opened on June 9 with a press preview for industrial editors and a ribbon-cutting ceremony performed by New York's Governor W. Averell Harriman.

The occasion was the 3rd National Coated Abrasive Machinery Show, sponsored by Behr-Manning Co., a division of Norton Company, at its new $1,000,000 Product Engineering building. The abrasive manufacturer acted as host to the machinery industry, inviting machine manufacturers to demonstrate developments of the past two years.

Production men from all phases of the metalworking, finishing and other industries, brought actual workpieces, using them to subject the new machines to comparative testing of their grinding and polishing performance. Among show visitors were large groups of supervisory men from grinding and polishing departments of large automobile manufacturers, aircraft firms, government arsenals and others.

Dirck Olton is manager of the Product Engineering Department which developed the show. John J. Durnan was show manager.

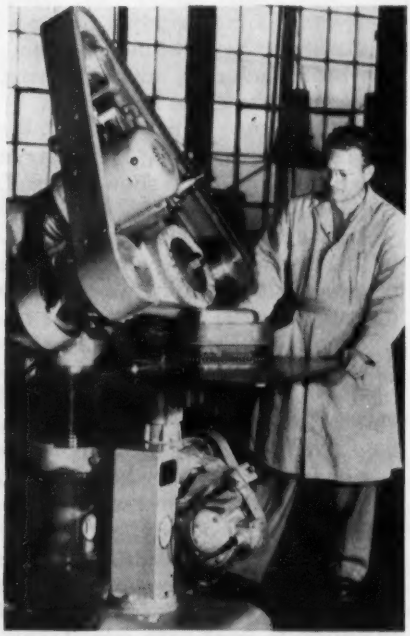
Mr. Olton, in welcoming visitors to the show, pointed out that the purpose of the exhibit was to keep industry abreast of the newest developments in the use of coated abrasives for grinding and finishing. He further remarked that the coated abrasive field is a relatively new field, and there is a tremendous educational job to be done to teach industry how to use this technique advantageously. Behr-Manning makes its contribution to this educational effort by conducting these shows, and by providing field engineers to work with manufacturers in applying the coated abrasive method to manufacturing problems. These field engineers are supported by a central engineering staff of experts in various fields.

The machines and products exhibited at the Behr-Manning Show were listed by classification in the June issue of PRODUCTS FINISHING. Some of these machines and products, illustrating a number of significant applications in the metal products finishing field, are shown in the accompanying photos.

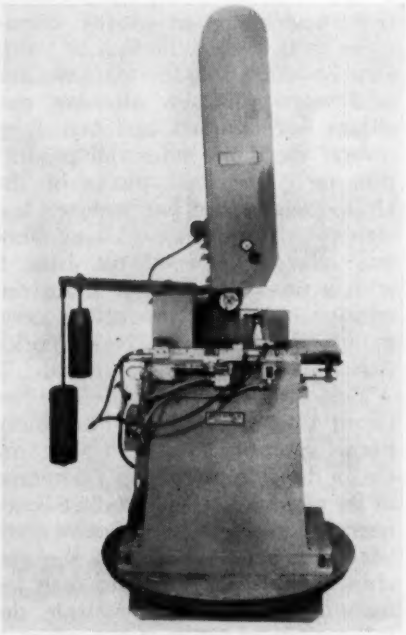
Abrasive Products Classified

Dr. Hugh N. Dyer, director of product testing, outlined a number of applications for coated abrasives, classified by type of backing, and by type of abrasive grain. These classifications are shown in Tables I and II. Dr. Dyer also discussed the use of adhesives in bonding the abrasive grain to the backing (See Table III).

Visitors were taken on a tour of the Behr-Manning plant to observe the manufacture of the coated abrasive products described.



***CONTOURED WORKPIECES** are held against coated abrasive belt by a powered chuck on this Divine Brothers machine. Shaped contact wheel makes belt conform to workpiece. Flat surfaces can be polished by substituting platen. Chuck indexes automatically.*



***BLENDING RADII ON 3600 JET ENGINE BLADES PER DAY** is accomplished by rise-and-fall belt polisher, a product of Abrasive Machinery, Inc. Reciprocating table carries work past cam-controlled contact wheel. Loading and unloading are automatic.*

Table I

COATED ABRASIVE PRODUCTS AND APPLICATIONS CLASSIFIED BY TYPE OF BACKING

PAPER	PROPERTIES	APPLICATIONS
A weight	Light, weak, flexible	Hand Sanding, Oscillating Sander Sheets
C "	Increasing strength, stiffness	"
D "	"	"
E "	Heavy, strong, stiff	Belt and Drum Paper
CLOTH		
J weight	Light, flexible	Hand Sanding, Machine Polishing, Contour Finishing
X "	Heavy, strong, stiff	Machine Polishing and Finishing (flat), Stock Removal
FIBRE	Extra strong and heavy	Discs and Drum Covers for Roughing and Heavy Stock Removal
Fibre-Cloth combination	"	"
Paper-Cloth combination	"	"

Both cloth and paper-backed coated abrasive products can be made water resistant for use in wet grinding and finishing operations.

Table II

COATED ABRASIVE APPLICATIONS BY TYPE OF ABRASIVE GRAIN

METAL	ABRASIVE GRAIN
Non-Ferrous Metals Aluminum, Brass, Zinc (die casting), Magnesium, etc.	Silicon Carbide Durite®
Ferrous Metals Iron, Steel	Aluminum Oxide Metalite®

(Also available—flint, emery, crocus natural abrasives)

Table III

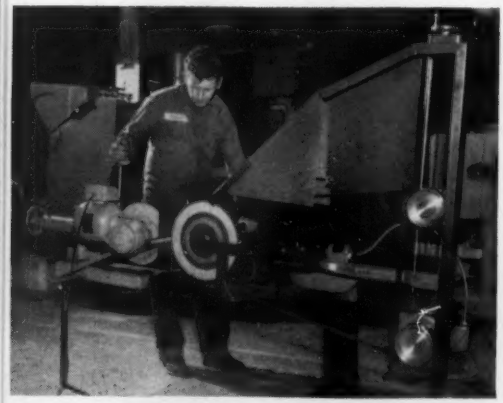
CHANGES IN COATED ABRASIVE CHARACTERISTICS THROUGH USE OF ADHESIVES

Adhesives are applied to the backing in two layers to hold the abrasive grains properly.

ADHESIVE	1ST COAT	2ND COAT	PROPERTIES
Glue Bond	glue	glue	Increasing resistance to heat, moisture, and grain shedding ↓
Resin over glue	glue	resin	
All resin	resin	resin	

Storage Room for Coated Abrasives

A storage room for coated abrasives was designed by Behr-Manning engineers and set up as a permanent exhibit. The room has the approximate dimensions of 12 by 20 by 8 feet high and contains approximately 2000 cu. ft. of space. The room is fitted with a humidifier, a 1½-ton, four-season air conditioner with a strip heater, and necessary controls. An equipment estimate furnished by Behr-Manning shows that this room can be built in a manufacturer's plant for about $1500.00.



CENTERLESS POLISHING MACHINE can be set up by attaching accessory unit to standard Bader Space-Saver polishing jack, as shown here. Unit will accept work from ¼ inch to 14 inches outside diameter. Rubber drive wheel rotates and feeds the workpiece; feed rate is varied by tilting the whole unit.

In discussing the usefulness of this type of storage room for coated abrasives, Dr. Hugh N. Dyer pointed out that glue, paper, and cloth are affected by changes in the temperature and the moisture content of the surrounding air. These materials tend to expand with an increase in moisture and contract with a decrease in moisture. When the coated abrasive product is subject to repeated cycling of high and low humidity conditions, the bond between the adhesive and the abrasive grain is weakened.

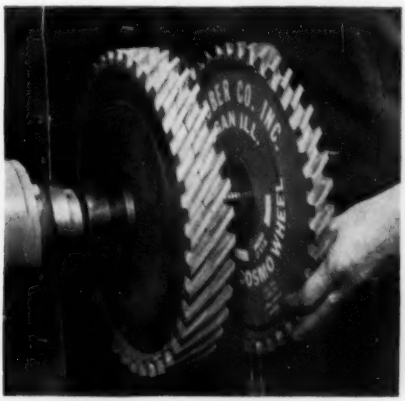
Behr-Manning recommends that

the coated abrasive user avoid extremes of high and low temperature and humidity in storage, and prevent high and low cycling between the two conditions. It is suggested that the controls in the storage room be set to maintain a temperature of 70 deg. F. and a relative humidity of about 50 per cent, plus or minus five per cent.

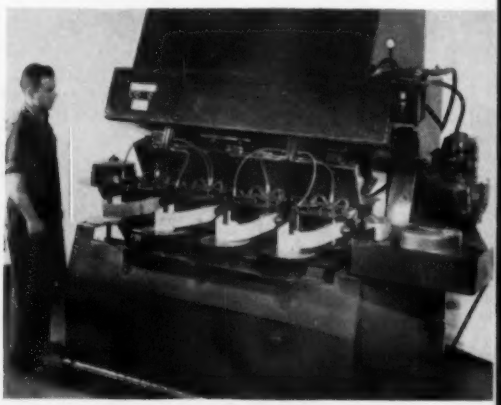
Synthetic resin bonds are less sensitive and less affected by extremes of temperature and humidity and the cycling effects, and have more resistance to moisture and heat. Glue is adversely affected by these conditions. Even when using synthetic resins, there is some relative change in the dimensions of the coating and the backing caused by changes in moisture and temperature. There are curling and cupping effects; sheets will not lie flat; dimensional changes occur.

"Good heavens, I told 'em NEVER to turn it on 'High!' "

The coated abrasive storage room is designed with its skeleton inside



***ONE-INCH-WIDE CONTACT WHEELS** can be ganged to any desired width. Made by Chicago Rubber Co., Inc., they are called R-58 Cosmowheels. Deep serrations allow these wheels to conform to the odd-shaped contours found on so many products. Contour polishing of die castings is a typical application.*



***STRIP AND TUBE STOCK** are polished longitudinally by this machine, built by Kearsarge Engineering Corp. It indexes abrasive roll stock to a variable number of work points, each of which is supported by a pneumatically operated platen. Each of these platens oscillates parallel to the travel of the work.*

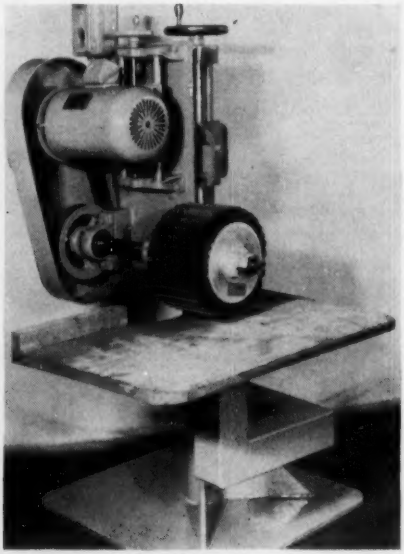
so that the user can build racks or shelves, or install pegs, as required by the type of coated abrasive products used in his plant. If shelves are installed, they should be made of expanded metal or punched with sufficient number and size of holes to make possible adequate air circulation. Instrumentation and controls for the room can be designed to suit the user. Generally, non-indicating temperature and humidity controls are adequate to hold the temperature and humidity between the desired limits.

BIBLIOGRAPHY OF INFORMATION ABOUT ALUMINUM FOR THE DESIGNER. A selected bibliography from the library of the Aluminum Company of America is available to designers and design engineers in the metalworking industry.

All available Alcoa literature and motion pictures of possible interest to designers are discussed in this publication. The final two pages of the booklet include forms to simplify ordering literature.

The listing is available by writing **Aluminum Company of America,** Room 799, Alcoa Building, Mellon Square, Pittsburgh 19, Pa.

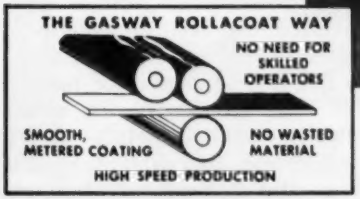
POLISHING CONCAVE AND CONVEX CONTOURS is easy for this tongue sander, a product of Bush Manufacturing Co. It is equipped with a combination of tilting polishing head and tilting table. Contact wheels used on this machine are 1/4 to 2 inches in diameter, may be yoked or yokeless.

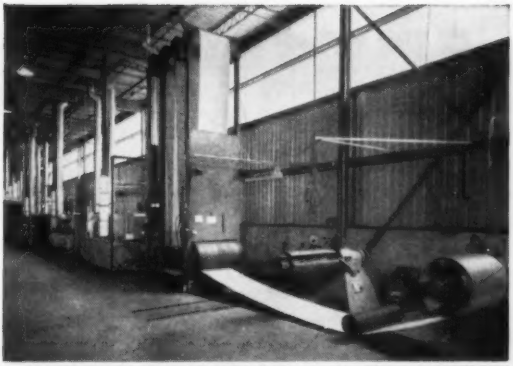


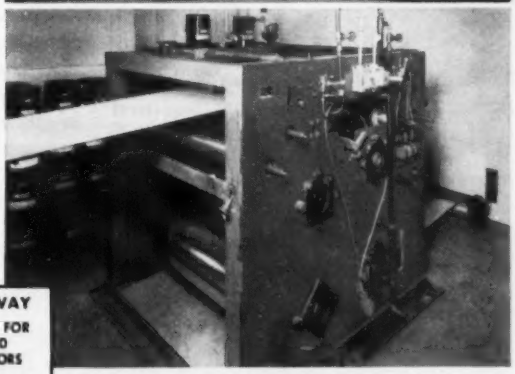
ADJUSTABILITY ON THREE AXES is the outstanding feature of this Vonnegut head machine, made by Grinding and Polishing Machinery Corp. It can be positioned to any angle and to any location of the work surface in relation to the table and bracket assembly. Speed range: 600 to 1800 r.p.m.

Prefinishing of Metal Strip by GASWAY

ORIGINATORS AND LEADERS IN THE FIELD







TOP — Complete 36" strip coating line installed at Reynolds Aluminum Supply Co. The line is completely automated — raw coil stock to coated and baked finish.
BOTTOM — Coater in the line at Reynolds evenly meters finish, saving paint and giving smooth baked coating.

UP TO 5,000 FEET PER HOUR—Cleaned, primed, coated and baked.

COATS EITHER OR BOTH SIDES at the same time with the same or different colors, or materials. Applies lubricants, preservatives, electrical coatings as well as decorative finishes.

MORE UNIFORM FINISHES—Metered finish is rolled evenly on the work. Film thickness is controlled to within one-tenth of one mil, for economy and uniform baking.

SAVES UP TO 50% on paints, enamels or other coating materials.
Application of tough elastic coatings permits forming after finishing.

NO HANDLING, other than of coiled stock. Continuous-type Gasway Rollacoaters perform every function from cleaning and treating to coating both sides, baking and recoiling all in a single pass. Some of the users of this equipment to speed up production and reduce cost are: *Reynolds Aluminum Supply—Lithostrip—Rollcoater, Inc.—American Nickeloid—Allweather Steel—Comaco—Hi-Ten.*

INFORMATION AVAILABLE at no obligation to you. Regardless of large production rates or intermittent manufacturing, there's a Gasway Rollacoater to fit your needs. *Send for the whole story.*

GASWAY CORPORATION
8463 North Ravenswood Ave.
Chicago 16, Illinois

LOOK TO GASWAY FOR EFFICIENT, HIGH PRODUCTION COATING OF STRIP, SHEET OR PANELS

For more data circle 338 on Postpaid Card

Comments on Infrared Energy for Paint Drying and Baking

By W. R. VAN ITTERSUM
John J. Fannon Products Company
Detroit, Michigan

Throughout the finishing industry heating engineers have attempted to reduce fuel requirements, time cycles and equipment sizes on industrial drying ovens to a theoretical minimum. In many fields these results have been obtained through the design and application of radiant energy devices.

Theory of Radiant Heating

Primarily, industrial infrared units are employed for elevating the temperature of metal products as they are exposed to the radiant energy, either in a batch or continuous conveyor-type oven. The rate of temperature rise of objects in an oven depends primarily on the difference between the energy gain of the stock by absorption of radiation, and the loss of heat by reradiation and convection. If the temperatures of the material and its surroundings are about the same, loss of energy by reradiation is negligible. Most of the energy losses, then, consist of heat transferred to the surrounding atmosphere.

The quantity of radiant energy converted into heat depends on the surface reflection characteristics of the stock. In the case of materials with high reflectivity for infrared radiation—such as metals—penetration beyond the surface is slight. Hence the surface reflection characteristics primarily determine the total energy absorbed. On coated objects the properties of the coating material play a major role in determining the behavior of the object subjected to radiation. If the coating is opaque to infrared, all heat generation occurs near or at the surface, and the metal underneath has little to do with the radiation absorbed. On the other hand, if the coating is relatively transparent to infrared, the properties of the metal determine the behavior of the object subjected to the rays.

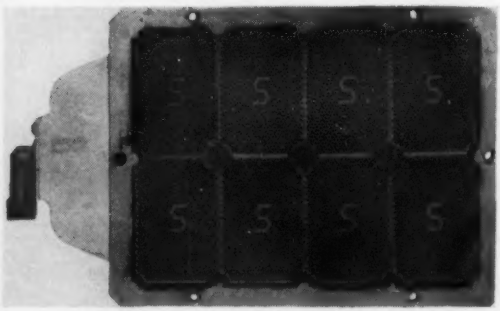


Fig. 1—Combustion surface of the basic Perfection-Schwank Gas infrared Rayhead.

Eliminates expensive vapor degreasers and jacketed tanks ... use in low-cost mild steel dip tank or drum ... ideal for continuous, conveyorized operations .... removes oil, grease and dirt quickly and easily .... safe for all metals ... non-corrosive, non-explosive ... pleasant odor .... exceptionally stable ... no rinsing necessary ... leaves no oily residue ... fast drying time .... high distillation rate ... can be redistilled and reused over and over .... cuts cost up to 70% over trichlorethylene or perchlorethylene.

Write for Klearall 95 Data Sheet No. SS-195

DEGREASE COLD WITH KLEARALL 95 SAFETY SOLVENT

and save up to 70% over your present costs

KLEARALL 95 is a product of OCTAGON PROCESS INC

STATEN ISLAND 1, N. Y.

Distributorships are available

For more data circle 340 on Postpaid Card

"The device burns gas on the surface of a ceramic mat."

For translucent coatings, the phenomena exhibited are dependent on the properties of both metal and coating. Baking or heating of the film may occur from the inside out, the outside in, or uniformly throughout the film, depending on the absorptivity of the film and the reflectivity of the under-surface. The temperature distribution throughout a solid depends on the thickness and thermal conductivity of the material. The heat generated near or at the surface is transmitted by conduction to the interior of the metal. For relatively thick bodies the temperature is nonuniform throughout the solid during the initial stages of exposure to radiation. For the thin metallic objects frequently met in industrial practice, both transient effects of nonuniform temperature distribution during the initial exposure and end effects caused by absorption on the edges may be neglected. If the material is 12 gauge or thinner, the temperature can be considered to be uniform throughout the material.

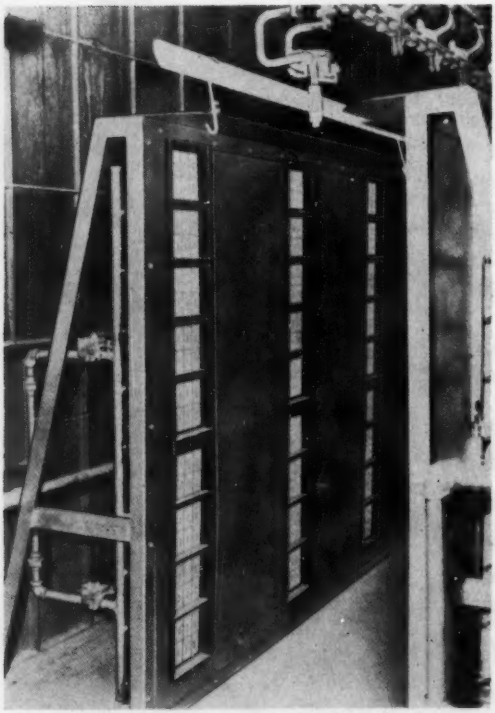


Fig. 2—Tunnel-type oven installed on paint finishing conveyor line for baking long sheet metal parts. As can be noted, nine of the Rayheads shown in Fig. 1 are mounted on each side of the conveyor in a vertical panel installation. The number of vertical panel units used to form the complete oven depends upon the desired conveyor speed, material to be dried and baked, metal being finished, and other factors. (Photographs courtesy John J. Fannon Products Company)

Gas Infrared Heating Unit

A patented gas infrared unit called a Perfection-Schwank Rayhead has been developed by the John J. Fannon Products Co., Detroit (Fig. 1). This unit has heating characteristics similar to quartz tube electric heaters developed by the Fannon Company.

How "Rayhead" Functions

The device burns gas on the surface of a ceramic mat. The generator consists of a housing which holds the ceramic mat. This mat is made up of eight 1¾ by 2½-inch ceramic catalysts, each ⅜-inch thick and perforated with 200 holes per square inch. This combination is called a "Rayhead."

Quality

chrome plating is our goal for you!

Here, at Diamond, our plating specialists strive constantly to raise the standards of chrome plating.

For example, they developed DIAMOND CPA 1800 for you. It is *the additive* for chrome plating which increases plating speed, expands tank capacity, improves throwing power and the metallurgical character of chromium plate.

And, when you specify and use DIAMOND CHROMIC ACID, you get the latest facts on all phases of chromic acid application, research, testing. Facts that can help you lick a production problem, quality problem, or research problem.

For top-quality plating get DIAMOND CHROMIC ACID and DIAMOND CPA 1800 *plus* all the facts from your Diamond Representative or your nearby Diamond Distributor. They can be mighty helpful . . they can supply DIAMOND CHROMIC ACID where and when you need it. Diamond Alkali Company, 300 Union Commerce Building, Cleveland 14, Ohio.

Diamond Chemicals

For more data circle 341 on Postpaid Card

Gas Infrared Heat . . .

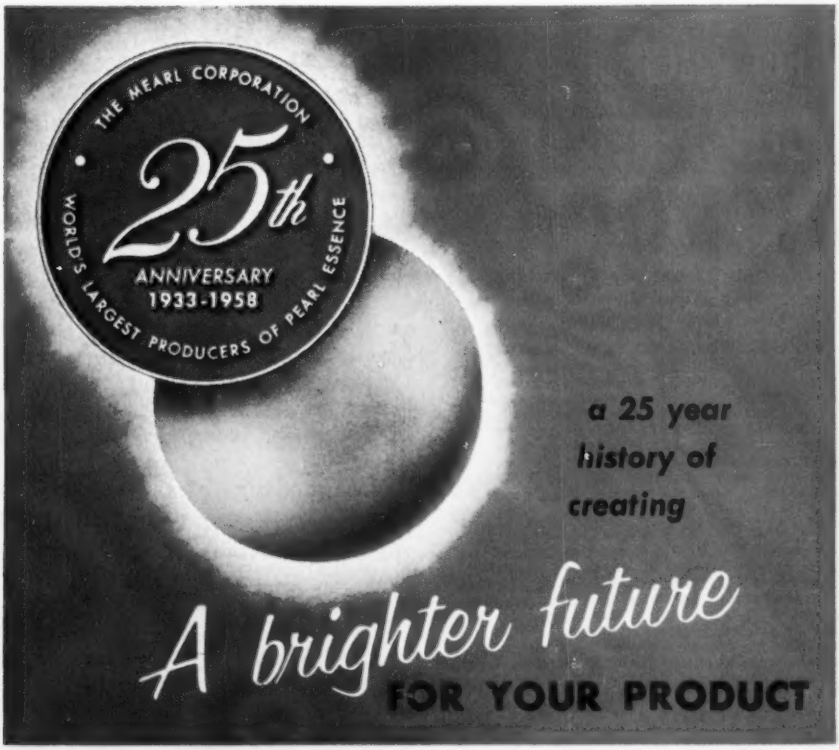
Gas is metered through an orifice, passes through an air aspirating chamber and a mixing tube to a chamber under the ceramic mat. The air-gas mixture burns on the surface of the ceramic at a temperature of approximately 1,650 deg. Fahrenheit.

The insulating qualities of the ceramic are such that the surface 3/8 inch away from the combustion surface does not become warm enough to ignite the gas in the mixing chamber. Thus, the burner reportedly will not back-fire. All gaseous fuels can be used. Manufactured gas is burned on ceramics that have smaller holes than used for natural or liquefied petroleum gas.

The low surface combustion temperature of the Perfection-Schwank burner (1,650 deg. F.) furnishes a radiant energy emission particularly rich in the long wave lengths. This output, coupled with the long wave length emission from the hot gases formed in the burner holes, provides a near optimum energy source for paint drying. Further, the hot gases emitted from the unit set up convection currents helpful in paint drying. Figure 2 is a view of a typical oven set-up in a conveyorized paint finishing plant.

IMPROVE YOUR
METAL FINISHING
RESULTS
use
DELAVAN
1. Delavan spray nozzles are individually spray tested to insure correct spray angle, capacity and droplet distribution.
2. Delavan tapered nozzle inlet, radius orifice and exclusive swirl chamber design, minimize nozzle wear and clogging. You get longer service and reduce maintenance costs in your metal finishing department.
3. You'll find that in most cases Delavan delivers from stock. On nozzles most commonly used in metal cleaning or finishing applications, large inventories are carried in a wide range of sizes and in a variety of materials.
DELAVAN
Manufacturing Company
WEST DES MOINES, IOWA

For more data circle 342 on Postpaid Card



A brighter sales future often requires no more than the unusual lustrous effects of Mearlmaid Natural Pearl Essence and Nacromer Synthetic Pearl Essence. They may be the idea you have been looking for to multiply the sales power of your product.

For twenty-five years, The Mearl Corporation has pioneered the use of these pigments. Used initially as a finish on jewelry and a few related items, the range of applications has expanded widely. Today, these pigments are used for lighting fixtures . . . for wood or metal furniture . . . for plastic upholstery fabrics . . . for decorative papers . . . for cosmetic packaging . . . and for countless other products.

As a surface coating mixed with ordinary coating materials and applied by standard methods, or, compounded directly into many plastic resins, a thousand and one new decorative and functional uses are within your reach. The application of Mearlmaid Pearl Essence or Nacromer to your product may provide the sales appeal you have been looking for.

Write today for complete information.

the Mearl corporation
WORLD'S LARGEST PRODUCERS OF PEARL ESSENCE

124 EAST 40th STREET
NEW YORK 16, NEW YORK

For more data circle 343 on Postpaid Card

REPLACE THAT
HOT BLACKENING BATH
WITH
DEEP PENETRATING

DICROPAN © PAT.

The Only ROOM TEMPERATURE Bath
That works in as little as
13 SECONDS

NON-CAUSTIC—NO FUMES—NO HEAT
For the first time in history you can eliminate messy, expensive, dangerously hot caustic blackening baths. DICROPAN makes your blackening operation a pleasure for your men instead of health and equipment hazard. On Polished Steels, DICROPAN gives a finish that looks like black chrome with blue overtones.* Also gives complete coverage on forgings, stampings, castings and machined parts. RUST AND ABRASION RESISTANT. Write for Dicropan Literature or circle No. 454 on Postpaid Card.

DICROPAN-T4 © PAT.
The perfect TOUCH-UP for correcting Damaged or Off Color surfaces following all blackening operations . . . Ideal for: STEEL MARKING AND LAY-OUT. Not affected by heat of cutting, Alcohol, Cleaning Agents or Outdoor Storage. No dimensional change. Can be sprayed, brushed or swabbed on. Thickeners available for vertical application or stencilling. Deep penetration—No after-rust—Highly Abrasion Resistant—Simple to apply PERMANENT—Write for Dicropan T-4 Literature or Circle No. 455 on Postpaid Card.

DICROPAN-A © PAT.
Room Temperature Immersion For Blackening
ALUMINUM
Eliminates Costly Out of Plant Anodizing
Tough—Durable—Abrasion Resistant. Can be readily touched-up when surface is marred or damaged during fabrication after blackening. Color-Fast. WILL NOT FADE UNDER LIGHT. Withstands High Temperatures and Unlimited Outdoor Exposures. Write for Dicropan-A Literature or Circle 456 on Postpaid Card.

DICROPAN-B © PAT.
Room Temperature Immersion For Coloring All
COPPER AND COPPER ALLOYS
Chemical Spectrum Colors—End Point Coloring—Permanent, deep colors that require no unusual techniques to handle. Turns out volume work in minutes where it used to take days. (Used on recent federal constructions in Washington, D.C.). For structural work, appliances, hardware, accessories, luxury and every-day hard goods. Equally effective on Solid or Plated materials. Write for Dicropan-B Literature or Circle No. 457 on Postpaid Card.

Bob Brownell's
CORNER MAIN & THIRD
MONTEZUMA - IOWA
Phone Main 3-3401

Assembled Plating Racks: Model Changes No Hurdle

The traditional plating rack that's built to handle only one part—the rack that has to be scrapped when a new model comes out with different-shaped parts — is gradually going out of style.

Taking its place is a basic frame with assembled components that can be changed around to carry many different types of parts. Only the adapters that hold the parts during plating need be replaced on change-overs.

Maintenance of the component-type rack is easier, too. If a rack

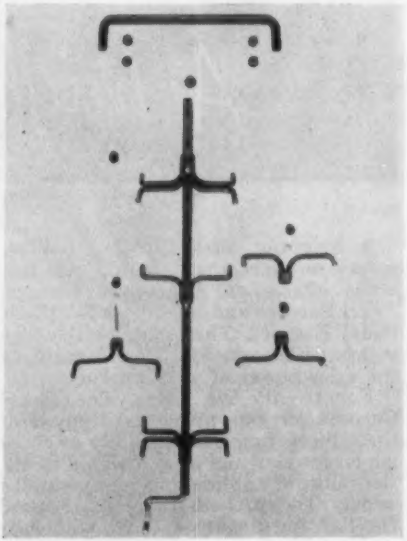


Fig. 1—An assortment of components, Hypalon rubber caps and basic members used to make a plating rack. Such an assortment is made by Automotive Rubber Co., Detroit, as a "do-it-yourself" rack-building kit.

component is damaged in service, the whole rack need not be taken off the line for repairs: only the one component has to be replaced. This reduces the number of plating racks needed, since no racks need be kept in reserve for replacing broken or damaged racks.

Part of the credit for development of racks that can be used over and over again must be given to the improved coatings that protect them from the corrosive plating solutions, such as chromic acid.

Rack coatings applied to single-purpose racks have often been porous, loosely adhering coverings that allowed plating solutions to seep underneath. Result: shorter rack life, loss of expensive plating solutions. It has been found that from 15 to 40 per cent of the metal in plating solutions is consumed in this way.

One coating that is doing a good job of protecting assembled racks made by Automotive Rubber Company, Detroit, is Hypalon, a Du Pont synthetic rubber notable for its resistance to oxidizing chemicals and acids as well as its excellent adhesion to metal.

Tests show that the bond between a Hypalon coating and the copper plating rack is stronger than the coating itself. The coating will tear before separating from the copper. As a result, components can be formed and machined (drilled, tapped, broached, and so on) after the molded coating is in place. And should the coating be damaged in service, plating out will not occur under the coating, nor will any liquid seep between the coating and the rack.

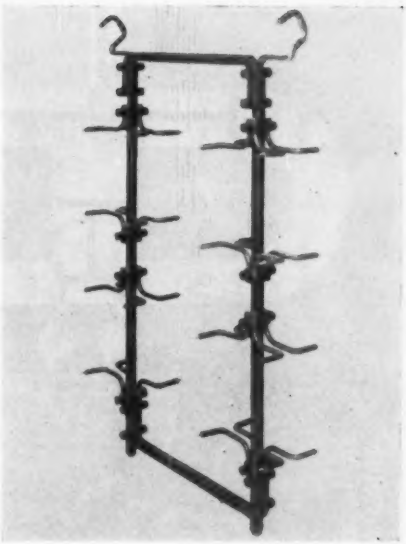
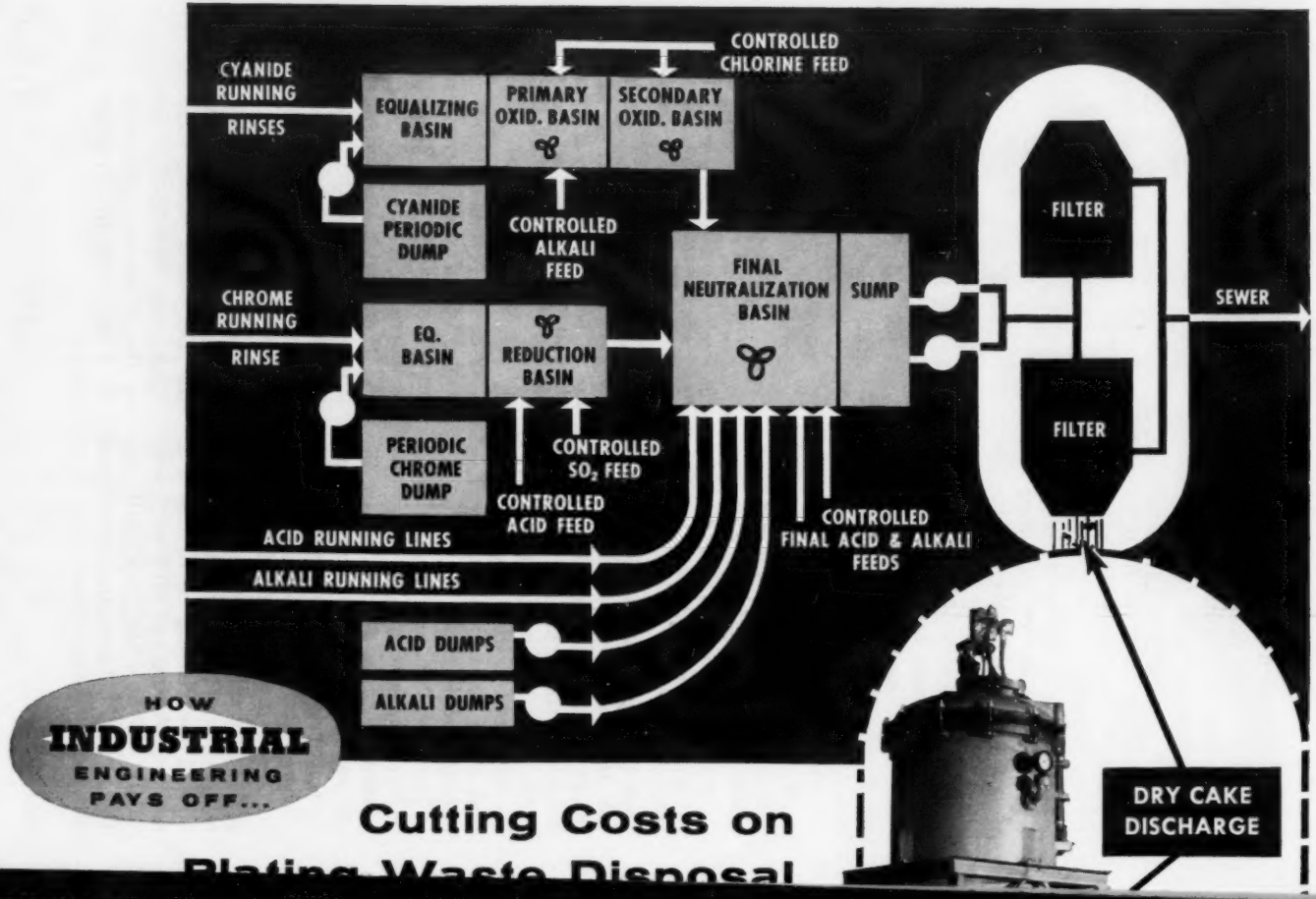


Fig. 2—A plating rack completely assembled from interchangeable components. A rack like this one, coated with synthetic rubber under high pressure, can be used in anodizing. Removable titanium contact tips are used, while racks themselves are either copper or aluminum. (Photographs courtesy Elastomer Chemicals Dept., E. I. du Pont de Nemours & Co. (Inc.), Wilmington, Del.)

This same material—Hypalon—is also useful in the form of molded caps that cover and gasket metal fasteners.

The assembled rack is more expensive to build than the single-purpose rack. But when model-changeover time comes, it's cheaper.

Adapted for publication in PRODUCTS FINISHING from the December, 1957, issue of the Elastomers Notebook, *a publication of the Elastomer Chemicals Dept., E. I. du Pont de Nemours & Co. (Inc.)*

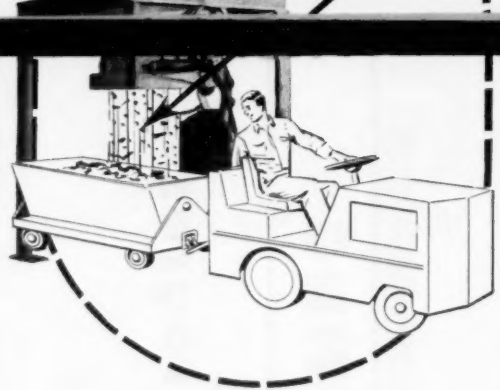

CONTROLLED CHLORINE FEED
CYANIDE RUNNING
RINSES
EQUALIZING BASIN
PRIMARY OXID. BASIN
SECONDARY OXID. BASIN
CYANIDE PERIODIC DUMP
CONTROLLED ALKALI FEED
FINAL NEUTRALIZATION BASIN
SUMP
FILTER
SEWER
CHROME RUNNING
RINSE
EQ. BASIN
REDUCTION BASIN
FILTER
PERIODIC CHROME DUMP
CONTROLLED SO_2 FEED
CONTROLLED ACID FEED
CONTROLLED FINAL ACID & ALKALI FEEDS
ACID RUNNING LINES
ALKALI RUNNING LINES
ACID DUMPS
ALKALI DUMPS
DRY CAKE DISCHARGE
HOW INDUSTRIAL ENGINEERING PAYS OFF...
Cutting Costs on
Plating Waste Disposal

Plating Waste Disposal

disposal of corrosive wastes from several plating lines.

The answer to their problem was the INDUSTRIAL *engineered system* diagrammed above. This system provides a central basin for neutralization of all the acid, alkali, cyanide and chrome wastes delivered from rinsing operations. Only small amounts of chemicals are added to precipitate the dissolved metals for separation by filtration. The two compact INDUSTRIAL filters extract the solids and discharge a neutral non-toxic effluent to the city sewage system.

The end results reduced equipment costs by one-half—two push-button Vertical Leaf Filters *replace* expensive clarifier mechanisms, sludge pumps and vacuum filter! . . . 90% LESS SPACE required for entire system! . . . SIMPLE INSTALLATION—no excavation or complex concrete work! . . . DRY CAKE WASTE DISPOSAL—discharged by mechanical shakers directly from filters into trucks!



SIMPLE, FAST CAKE DISPOSAL

There's no mess, no time lost with this rapid-cleaning INDUSTRIAL filter. A simple mechanical shaker discharges the *dry* cake through the convenient bottom outlet—directly into a waiting disposal truck that can be driven away immediately.

INDUSTRIAL

INDUSTRIAL FILTER & PUMP MFG. COMPANY
5904 Ogden Avenue, Chicago 50, Illinois

Call or write INDUSTRIAL to find out how an engineered system like this can solve your specific plating waste and recovery problems.

P-358

PRESSURE FILTERS ◆ ION & HEAT EXCHANGERS ◆ WASTE-TREATING EQUIPMENT

For more data circle 344 on Postpaid Card

SPOTLIGHTING

finishing progress

A New Theory to Explain Stress Corrosion Cracking of Stainless Steel

Crystals that grow as delicate plates from the surface of stainless steel, may explain, for the first time, a failure of the metal known as "stress-corrosion cracking."

This new theory was revealed by an international authority on corrosion, Dr. Earl A. Gulbransen, advisory chemist at the Westinghouse Research Laboratories in Pittsburgh, Pa. Dr. Gulbransen spoke before the Second World Metallurgical Congress, at the International Amphitheatre, Chicago, under sponsorship of the American Society for Metals.

Stress-corrosion cracking can occur in metal structures which are chemically corroded while under an internal or applied stress, such as a pull or twist. It can cause complete failure of the structure.

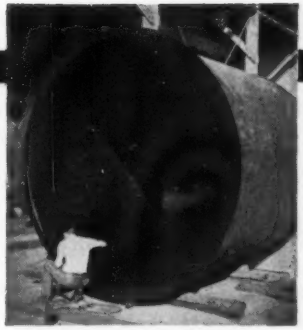
Stress-corrosion cracking can be triggered even by such mildly corrosive substances as steam or human perspiration; it can occur in objects subjected only to the internal stresses left in them during their manufacture. Stainless steel pipes, turbine blades—even coffee urns and cooking vessels can fail by stress-corrosion cracking.

Dr. Gulbransen described the newly discovered crystals as "submicroscopic platelets of chromium oxide." They form on strongly stressed stainless steel specimens which are exposed to corroding atmospheres containing traces of negatively charged chlorine atoms — more properly referred to as chloride ions.

"We believe that this unique crystal growth has important bearing on the whole general problem of stress corrosion," Dr. Gulbransen said, "for it has suggested to us a mechanism on the atomic scale to explain such corrosion."

"We think that this growth of platelets on the surface of the steel could lead to a chemical cutting of

Series 105



TANK LINING QUIZ

Will your present tank lining meet all ten conditions below? It will, **and more,** if it's...

Amer-Plate

PVC TANK LINING

	Yes	No
1. Will it adhere directly to concrete without costly metal interlining?	☐	☐
2. Will it withstand hard chrome liquor to 160° F.?	☐	☐
3. Is it unaffected by strong acids and oxidizing materials?	☐	☐
4. Is it resistant to highly corrosive salts?	☐	☐
5. Will it resist alkalis, including 50% caustic soda?	☐	☐
6. Is it insoluble in aliphatic alcohols, glycol and glycerine?	☐	☐
7. Is it impervious to diesel oil, sour crude, aliphatic petroleum hydrocarbons?	☐	☐
8. Is it non-toxic in food and beverage service?	☐	☐
9. Is it also supplied with T-ribbed back, for casting into place in new concrete tanks?	☐	☐
10. Are expert applicators available in all major cities?	☐	☐

If your present tank lining material scores NO on any point that is important to you, it's time to consider the lining that passes ALL the tests... AMER-PLATE POLYVINYL CHLORIDE SHEET! For complete information and name of nearest applicator, write:

Amercoat®
CORPORATION

Dept. EG, 4809 Firestone Boulevard, South Gate, California

Evanston, Illinois • Kenilworth, New Jersey • Jacksonville, Florida • Houston, Texas

For more data circle 345 on Postpaid Card

the metal. Minute crevices, therefore, might grow downward into the metal surface as the platelets thrust themselves above it. This, we believe, may lead to concentration of stress at the base of the crevices and eventually to failure of the metal."

Working with Dr. Gulbransen in the experiments which led to the new theory were T. P. Copan and Dr. Daniel van Rooyen, research engineers at the Westinghouse Research Laboratories. The experiments are inherently quite simple, but extremely delicate and precise.

In a typical experiment, a small piece of stainless steel wire, nine thousandths of an inch in diameter

Fig. 1—These oxide whiskers grow on the surface of stainless steel when it is corroded at high temperatures by pure mixtures of water vapor and oxygen. The whiskers, about a billion of them per square inch of metal surface, are only about two millionths of an inch thick and less than one-thousandth of an inch high. Magnification used to make this photograph, 11,200X.

PROMAT: YOUR BEST SOURCE OF METAL FINISHING PROCESSES

"PROMAT MEANS PROTECTIVE MATERIALS"

HERE'S WHY — For almost twenty years PROMAT has been supplying the metal finishing industry with the finest in chemical products and processes relating to the finishing treatment of metals. • PROMAT manufactures an unexcelled line of ZINC BRIGHTENERS, CADMIUM BRIGHTENERS, ELECTROPOLISHES, ANTI-FOAM AGENTS, DOCTOR'S SOLUTION, CLEANERS, RUSTPROOFERS, and CHROMATES.

TECHNICAL ASSISTANCE — is yours for the asking from PROMAT'S service department where highly skilled technicians stand ready to serve you in the solution of any metal finishing problem you may have.

To obtain technical bulletins relating to any of PROMAT'S fine line of chemicals, or to receive PROMAT'S monthly publication "Progress," write to

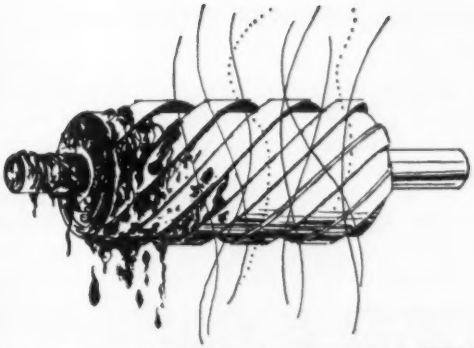
PROMAT Division of Poor & Company

851 S. MARKET STREET • WAUKEGAN, ILLINOIS

PROMAT'S products are manufactured in the United States, Canada, Great Britain and West Germany, and sold throughout the free world. PROMAT'S manufacturing plants in the United States are located in Waukegan, Illinois and Gardena, California.

For more data circle 346 on Postpaid Card

CUT DEGREASING COSTS by increasing efficiency!



---Dupont "TRICLENE" D®
(TRICHLORETHYLENE)

Aliphatic Petroleum Naphthas
Alcohols and Acetates
Alkanolamines
Aromatic Solvents,
Petroleum and Coal Tar
Chlorinated Paraffins
Chlorinated Solvents
Dowanols and Glycerine
Glycols and Glycol Ethers
Ketones and Ethers
Oils and Fatty Acids
Plasticizers
Resinates-Sodium and Potassium
Rosins-Gum and Wood
Stearates
Terpene Solvents
Waxes

the best all-purpose vapor degreasing solvent ever made!

★ **Fewer work interruptions** due to fewer cleanouts.

★ **Less Down-Time** for maintenance. Less sludge, faster cleanouts.

★ **Fewer rejects.** Contains no elements to accelerate staining.

★ **Resists** all major causes of solvent breakdown.

★ **Quick drum delivery** from local stocks.

AMSCO SOLVENTS & CHEMICALS CO.
4619 Reading Road—Elmhurst 1-4700
Cincinnati 29, Ohio

BUFFALO SOLVENTS & CHEMICALS CORP.
Box 73, Station B—Bedford 1572
Buffalo 7, New York

CENTRAL SOLVENTS & CHEMICALS CO.
2540 West Flournoy Street—SEeley 3-0505
Chicago 12, Illinois

DIXIE SOLVENTS & CHEMICALS CO.
Dixie Highway at Appleton Lane—Emerson 8-5828
Louisville 16, Kentucky

HOOSIER SOLVENTS & CHEMICALS CORP.
1650 Luett Ave.—MElrose 8-1361
Indianapolis 22, Ind.
Nelson Road East—Anthony 0213
Fort Wayne 8, Ind.

MISSOURI SOLVENTS & CHEMICALS CO.
419 De Soto Ave.—GArfield 1-3495
St. Louis 7, Missouri
2522 Nicholson Ave.—CHestnut 1-3223
Kansas City 20, Missouri

OHIO SOLVENTS & CHEMICALS CO.
3470 W. 140th St.—CLearwater 2-1100
Cleveland 11, Ohio

SOUTHERN SOLVENTS & CHEMICALS CORP.
917 Jefferson Highway, P.O. Box 4067
Carrollton Station—VErnon 3-4666
New Orleans 18, Louisiana

TEXAS SOLVENTS & CHEMICALS CO.
8501 Market Street—ORchard 2-6683
Houston 29, Texas
2500 Vinson Street—FEderal 1-5428
Dallas 12, Texas

TOLEDO SOLVENTS & CHEMICALS CO.
4051 South Avenue—Jordan 3771
Toledo 14, Ohio

WESTERN SOLVENTS & CHEMICALS CO.
6472 Selkirk Ave.—WAlnut 1-6350
Detroit 11, Mich.

WESTERN SOLVENTS & CHEMICALS CO. (CANADA) LTD.
1454 Crawford St.—CLearwater 2-0933
Windsor, Ontario, Canada

WISCONSIN SOLVENTS & CHEMICALS CORP.
1719 South 83rd St.—GReenfield 6-2630
Milwaukee 14, Wisconsin

WOLVERINE SOLVENTS & CHEMICALS CO.
2940 Stafford Ave., S.W.—CHerry 5-9111
Grand Rapids 8, Michigan

SCC firms

THE SOLVENTS AND CHEMICALS GROUP
2540 West Flournoy Street • Chicago 12, Illinois

For more data circle 347 on Postpaid Card

and subject only to the residual stresses it normally possesses, is exposed to a carefully controlled atmosphere of oxygen and water vapor at a red-hot temperature of 1100 deg. F.

A small disk of stainless steel, five thousandths of an inch thick and having a hole six thousandths of an inch in diameter, substitutes for the wire in some experiments. After corrosion by the hot atmosphere, the wire or disk is examined and photographed with the electron microscope. The pictures which result are startling.

Using pure oxygen and water vapor, the surface of a typical sample of stainless steel erupts with billions of oxide "whiskers." Only about one or two millionths of an inch in thickness, these whiskers grow to a height 300 or 400 times their diameter. Their density is about six billion per square inch of metal surface. These dimensions can be visualized by imagining a three-foot chimney built to a height of 100 feet. The vast number of whiskers on the metal surface is apparent when it is realized that the average human head of hair contains only about 100,000 hairs.

"Completely unexpected changes occur in

PROVED in over 10,800 installations
For innumerable applications
BENCH TYPE OVENS
BATCH OVENS
GRIEVE-HENDRY OVENS
Standard models with temperatures to 1200°F.
$110.50 and up
Write for literature.
CABINET OVENS
COMPARTMENT OVENS
If you are manufacturing a product that requires HEAT — for baking, preheating, drying, etc., it will pay you to consult with us. STANDARD OVENS in most models available from factory stock. In addition, we design and build Ovens to your particular requirements — Gas — Oil — Electric — any shape — any size — to any specification.
CONVEYOR OVENS
Sales engineers in all principal cities and many foreign countries.
GRIEVE-HENDRY CO., INC.
1414 W. Carroll Ave., Chicago 7, Ill.
Export Dept., 10406 S. Western Ave., Chicago 43, Illinois

For more data circle 348 on Postpaid Card

Here's the *only* carbon developed exclusively for removing impurities from plating solutions . . . Red Label DARCO. It has high purifying power . . . wets quickly . . . cuts dust problems. Its high density reduces time and labor for dumping filters by up to 50%.

You'll cut down on plating rejects, and the loss of costly anode metals such as nickel and copper, by using DARCO activated carbon. It's the standard of the industry—chosen by custom electroplaters and plating departments everywhere.

Give your nearby DARCO distributor a call . . . he'll be glad to show you how to use Red Label DARCO most effectively and to supply you promptly.

DARCO IS MADE BY ATLAS CHEMICALS DIVISION ATLAS POWDER COMPANY
WILMINGTON 99, DELAWARE

In Canada: Atlas Powder Company, Canada, Ltd.
Brantford, Ontario, Canada

For more data circle 349 on Postpaid Card

this crystal growth simply by prestressing the stainless steel and adding only the slightest trace — less than five p.p.m. — of chloride ions to the atmosphere," Dr. Gulbransen said.

Instead of long thin filaments, we discover rows of thin, upright, parallel plates growing along a definite crystallographic direction.

Under the electron microscope, these crystals are easily penetrated with a 60,000-volt beam of electrons, placing their thickness at a half a millionth of an inch or less. Analysis shows them to have the characteristic structure of an oxide of chromium, Cr_2O_3. Chromium is a metal normally present in stainless steels, and each tiny plate appears to be a single crystal of its oxide.

For some time scientists have known that the chloride ion is a major factor in producing stress-corrosion cracking of stainless steel. It would now appear that chloride ions could stimulate the growth of these unique, plate-like crystals in a strongly stressed metal. This growth might result in cracking and the ultimate failure of the steel.

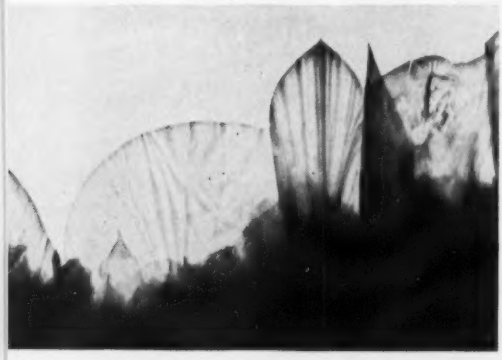


Fig. 2—Delicate sheets of crystals erupt from the surface of stainless steel in corrosion studies. Growth of the crystals, Westinghouse scientists believe, may cut tiny canyons into the metal's surface and lead to a type of metal failure called stress-corrosion cracking. The tiny crystals are only about half a millionth of an inch thick and 120 millionths of an inch high. Magnification, 9000X. (Photos courtesy Westinghouse Electric Corp.)

Coming Up: Profitable Reading

Many interesting articles are being readied for future issues of PRODUCTS FINISHING . . . the kind of articles that tell the finisher how to do his job better, how other people have improved finishing operations. Look for these and other valuable articles in coming issues:

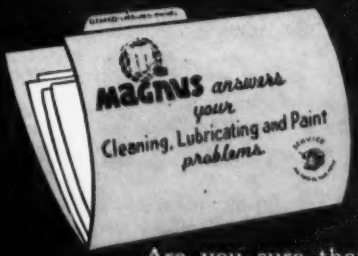
A Review of Organic Coatings
A survey of available organic coatings that are in common use throughout industry, with a discussion of the advantages and disadvantages of each . . .

Planning and Operating an Industrial Waste-Disposal Plant
Large plant gets top results by installing waste-disposal facilities as an integral part of a new plating line . . .

How to Make and Install an Air-Agitation System
A few simple rules that help in designing and installing an efficient air-agitation system in a plating tank . . .

Watch for these and other articles in PRODUCTS FINISHING, the Finishing Industry's most informative publication!

THE ANSWERS TO YOUR CLEANING PROBLEMS



FREE
in a single, convenient file folder

Are you sure that your present cleaning methods are the best possible? If not, you owe it to yourself to write today for free complete information on the successful methods now in use and backed by Magnus, the one source for every cleaning need—materials, methods and machines.

CLIP and MAIL

MAGNUS CHEMICAL COMPANY, INC.
208 South Avenue, Garwood, New Jersey

Please send me your FREE file folder with complete information on the following subjects:

- ☐ ALKALINE CLEANING
- ☐ BARREL DEBURRING AND BURNISHING
- ☐ CLEANING MACHINES
- ☐ DESCALING
- ☐ DRAWING AND STAMPING LUBRICANTS
- ☐ ELECTRO CLEANING
- ☐ EMULSION CLEANING
- ☐ PICKLING
- ☐ PHOSPHATIZING CLEANING
- ☐ PRE-CLEANING
- ☐ RUST PREVENTION
- ☐ RUST REMOVAL
- ☐ STRIPPABLE SPRAY BOOTH COATING
- ☐ SPRAY BOOTH WATER CURTAIN CONTROL
- ☐ STRIPPING FINISHES

NAME_____
COMPANY_____ POSITION_____
ADDRESS_____
CITY_____ STATE_____

INDUSTRIAL CLEANING DIVISION

magnus
CHEMICAL COMPANY INC.

magnus a world-wide organization specializing in cleaning and protection of all surfaces.

For more data circle 350 on Postpaid Card

finishing clinic

Suggested solutions to problems submitted by readers. Send your problem to our Editorial Staff. There is no charge.

Tarnish Prevention

Question: *We are confronted with the old problem of tarnishing silver plate and sterling silver trophies in our display case.*

Your advice on proper protection of the silver would be greatly appreciated.

P. D. A.

Answer: You can slow the rate of tarnish formation in two ways. One way is to provide an ample supply of a dessicant material in the display cases so that moisture will be absorbed and the air in the cases will remain fairly dry. Perhaps a more satisfactory and permanent way of solving the problem would be to have the trophies thoroughly cleaned and polished (or replated) by a specialist in silver plating, after which a coat of clear lacquer could be applied to the silver products. Surfaces protected in this way will retain their appearance for a long period of time.

★ ★ ★

Gold Plating Steel Parts

Question: *We have a problem with small steel parts that are hermetically sealed. We require a gold finish on the parts. The parts must withstand a boiling water test of two hours and not show signs of corrosion upon completion of the boiling water test. The parts must pass the CP-4 test. Can you outline a plating method that will meet the above requirements and not cause the finish to be brittle?*

J. A.

Answer: It is usually considered necessary to apply a copper flash and at least 0.0002-inch thickness of nickel prior to gold plating.

We are recommending companies to contact for more complete information on the plating process that will enable you to secure the desired result. These organizations sell gold plating processes and their engineers can give detailed information.

★ ★ ★

Vinyl Plastic Coating

Question: *We are interested in finding a source from whom to purchase material and gain application know-how on the application of vinyl plastic coating to metallic parts. The coating referred to is presently used to insulate tools used in the electronic industry and acts as a padding on some kitchen utensils.*

M. D.

Answer: We are forwarding you copies of two articles published in PRODUCTS FINISHING on the subject in which you are interested. They are: "Plastisol Coating of Plating Racks and Tanks — A Job for Specialists" and "Plastisol Coating of Wire Products."

We are also referring you to companies who supply plastisol and plastic coatings.

★ ★ ★

Reflector-Type Paint

Question: *We have been requested to paint a large quantity of small aluminum flags. The coating is to be orange or yellow reflector-type paint.*

Our paint source cannot furnish a material of this type. Can you advise the name of a manufacturer of this material?

H. T. A.

Answer: With this letter we are forwarding you a copy of the PRODUCTS FINISHING DIRECTORY in which paint manufacturers are listed under the following headings: "Enamels" on Page 77; "Hammer-Type Finishes" on Page 91; "Lacquers" on Page 98; and "Paints, metal decorating" on Page 125.

We presume that you are familiar with reflecting tape. If you cannot secure a satisfactory paint, you might find it convenient to coat the aluminum with tape prior to stamping.

★ ★ ★

Prevention of Rust in Storage

Question: *We manufacture tin plate. Tin plate must be protected from damage in storage and during shipment. Most tin plate is shipped in cut lengths (sheet form). There are as many as 1680 sheets in a bundle and the bundle weighs as much as 4000 pounds. The bundle is on a wood pallet, wrapped with asphalt-laminated paper covered with corrugated cardboard and held together by 18-gauge angles, which we make ourselves from reject sheet mill stock.*

After a bundle is finished, wrapped and strapped, it is taken to the warehouse and stored, sometimes for a period of a year. Storage is dry and well protected.

My problem is this: The angles on bundles become rusty in the warehouse and I would like to do something to the sheet stock before the angle is made to prevent it from rusting. This would only have to be done to one side—the outside of the angle.

As to type of protection, it makes no difference to us except it has to be inexpensive and quick. It can be a chemical coating, paint, oxidized finish, applied by dip or roller coat.

We don't want permanent protection and it makes no difference if the coating becomes scratched or scuffed.

Your help and advice will be appreciated.

H .C. R.

Answer: If I interpret your letter correctly, you are using bare steel stock to make the angles on the bundles of tin plate. It is your desire to keep these angles from rusting in storage.

There are a number of different kinds of products which you can use for this purpose as you, yourself, have indicated. In the PRODUCTS FINISHING DIRECTORY — a copy of which I am forwarding with this letter—we list, on Pages 166 and 167, a number of manufacturers of "Rust-Preventive Chemicals" and "Rust-Preventive Oils." Obviously, these products will offer only temporary protection, but that may be good enough for your purpose.

The next best protection can be obtained from a phosphate coating. Manufacturers are listed on Pages 127, 128 and 129 of the DIRECTORY.

You might find a paint or primer coating which could be dip or spray applied and would be inexpensive enough for your purpose. Primers are listed on Pages 155, 156 and 157 of the DIRECTORY. Other paint coatings are listed on Pages 77, 98, 118 and 126.

Finishing Clinic . . .

Non-Electrolytic Plating

Question: *In your March issue there was an article on non-electrolytic plating of nickel-phosphorus alloys onto steel. Our problem is to plate 93% nickel and 7% phosphorus alloy onto aluminum pistons.*

We would appreciate it if you would forward the names of the companies who can supply the desired information.

M. A.

Answer: Additional information on this process can be obtained from the National Bureau of Standards, Washington 25, D. C.

We are also referring you to companies who sell materials for use in this process and can provide operating instructions.

★ ★ ★

Application of Tough, Clear Coating Over Anodized Aluminum

Question: *We do custom anodizing and dye work of aluminum products. We have a customer who would like to use color-anodized aluminum parts on snow skis. He will not do so now because the parts under consideration would be marred by the steel edges of the skis when they crossed, breaking through the color anodized part to reveal the clear aluminum.*

Do you know of any transparent plastic or any other type of coating which is hard enough to give protection to this color-anodized piece of aluminum and resist continual abuse without breaking through to the aluminum?

The customer applies a very simple but effective test as to whether or not the coating is durable enough. He uses a one inch file under slight pressure of the hand on the coating. If the clear aluminum is revealed, the coating is unsatisfactory. This coating would probably have to be applied to the finished product rather than to the aluminum part prior to assembly.

D. B. B.

Answer: As you realize, the durability test used by your customer is certainly a drastic one for testing abrasion resistance of paint fiinishes. The companies to whom we are referring you may be able to suggest a solution to your problem.

★ ★ ★

Anodizing Coiled Aluminum Sheet Stock

Question: *Can you supply me with names of companies that color anodize aluminum sheet?*

W. W. B.

Answer: Anodizing and coloring of coiled aluminum sheet stock is a highly specialized operation. Not too many companies in the United States are equipped to perform this operation. However, we are referring you to some companies whom we feel can either do the job for you or can provide you with names of companies who can color anodize aluminum sheet and coil stock.

★ ★ ★

Sealing Parts Prior to Plating

Question: *Please send us information on brass and iron sintered parts as requested by W. H. B. on Pages 64 and 65 of your April issue.*

J. W. B.

Answer: We are recommending companies to be contacted to obtain the information you desire. Also, there are a number of plating supply companies that have done work on the plating of sintered parts. We are listing them to aid you in this phase of the process.

Improvement of Cleaning and Plating Operation

Question: *We are evaluating the productivity and cost of our cleaning and plating operation (sheet metal and solid parts for electronic job shop —lot sizes 5 to 15 pieces). Devising methods for operators to process more lots per trip would seem to be one answer to our problem; we are also considering piece work.*

We would appreciate receiving any available articles on the subject of increased productivity and efficiency in an operation such as ours. It would also be particularly valuable to be put in contact with an organization that has solved similar problems and might be willing to share their experience.

W. A. S.

Answer: With this letter we are forwarding the following articles previously published in PRODUCTS FINISHING which may be of assistance to you in conducting your study: "Finishing Razor Parts: Gillette Installs Automatic Cycle Hoist System," "Automation in the Plating Industry," "What the Well-Planned Plating Room Looks Like," "Automation in a Job Shop," "Westinghouse Uses Time Study to Increase Output," "Work Simplification Programs for the Metal Finisher."

We are referring you to some companies for assistance in your project. These organizations maintain engineering personnel and facilities, and, without doubt, have solved problems such as yours for many of their customers. With these experiences on file, they are in an excellent position to advise concerning similar problems.

★ ★ ★

Bright Barrel Nickel Plating

Question: *On Page 31 of the April, 1954, issue of PRODUCTS FINISHING we have noted a solution composition for bright barrel nickel plating. A part of our work involves the barrel nickel plating of brass keys which must be bright and ductile enough to permit the subsequent embossing over a minimum deposit of 0.0002-inch thickness. In regard to the bath cited, would you please comment on the following aspects: what brightness and ductility may be expected?; tolerance to impurities; rate of deposition and electrical power requirements; the function(s) of the magnesium salts.*

E. J. M.

Answer: I have personally inspected the parts plated in the solution described in the April 1954 issue of PRODUCTS FINISHING on Page 31 and, although I cannot give you specific figures, I can assure you that the deposits are bright and reasonably ductile.

The rate of deposition and electrical power requirements are much the same as for all barrel nickel solutions.

Magnesium chloride is being used in barrel nickel plating solutions. The limit of solubility in nickel plating solutions is over 40 oz./gal., so that no precipitation can occur. Some magnesium chloride may contain small amounts of calcium salts, which will give a precipitate. The addition of magnesium chloride increases the conductivity of the solution. Magnesium chloride is relatively purer than nickel chloride, so fewer contaminants are added when magnesium chloride is used.

There should be no loss of brightness nor difficulty from pitting if the solution is otherwise in good condition. The only exception is that certain proprietary bright nickel plating solutions have ingredients which form insoluble magnesium salts. The vendor will be able to inform you regarding this reaction.

You will be able to obtain addition-

al specific information from the various suppliers of proprietary nickel plating solutions. These companies are listed on Pages 144 and 146 of the PRODUCTS FINISHING DIRECTORY.

★ ★ ★

Preparation of Copper, Brass and Nickel Silver for Silver Plating

Question: *For some time we have used a mercury dip as a pre-plate treatment for hard metals such as copper, brass and nickel silver. We would like to know if you can advise a better method of performing this operation.*

E. R.

Answer: The mercury dip which you are now using is still in use in some shops as a treatment prior to the regular silver strike. Use of the mercury dip is said to result in improved adhesion of the silver deposit. It is quite possible that the use of the mercury dip will enable you to secure a satisfactory deposit on copper and brass particularly. You might also like to consider the use of a thin nickel plate or a thin tin deposit on copper and brass, prior to the regular silver strike and silver plate.

In the article, "Repairing and Silver Plating Valuable Antiques" published in the December 1949 issue of PRODUCTS FINISHING, the following process steps are mentioned, with particular reference to depositing silver on Britannia metal (90 per cent tin, balance antimony and copper) and nickel silver.

1. Buff or finish mechanically in preparation for plating.
2. Soak in an alkaline cleaning solution at 180 deg. F., followed by hand brushing in the same solution.
3. Thorough water rinse.
4. Scratch brush with German silver wire brush.
5. Brush with a tampico brush using a pumice slurry.
6. Rinse thoroughly in water.
7. Dip in 10 per cent hydrochloric (muriatic) acid.
8. Water rinse.
9. Dip in a sodium cyanide solution (10 oz./gal.).
10. Water rinse.
11. Strike at six volts for two to 60 seconds in a silver strike solution composed of ¼ oz./gal. metallic silver and 10 oz./gal. free sodium cyanide. Room temperature. Stainless steel anodes.
12. Silver plate in the usual fashion.

★ ★ ★

Porcelain Enameling

Question: *We are interested in porcelainizing or porcelain enamel on metal and would like to receive information about it.*

P. G.

Answer: Quite a number of books and hundreds of articles have been written on this subject. With this letter, we are forwarding you tear-sheets of a number of articles published in PRODUCTS FINISHING on this subject. They are: "Ceramic Finishing: Whirlpool Installs Continuously Recirculating System," "Producing Porcelain-Enameled Signs," "How to Prepare Aluminum for Porcelain Enameling," "Automatic Dipping," "Porcelain Enamel," "Westinghouse Columbus Appliance Plant Features Automated Processes," "Rigid Production Control Assures Quality Enameled Products," "Finishing the Lustron Home."

We are also suggesting several major suppliers of porcelain enamel frit and equipment for use in applying porcelain from whom a wealth of detailed information can be secured.

Briefly, porcelain enamel is no more nor less than finely ground glass which is applied to metal from a water solution, either by dipping or by spraying. The coated metal part is dried at a relatively low temperature, merely to remove water. The dry porcelain enamel coat is then fired at a temperature between 1300 and 1800 deg. F., depending upon the metal used, the product, and other factors, to fuse the glass into a coating.

★ ★ ★

Prevention of Corrosion on "O" Ring Surfaces

Question: *We have a corrosion problem with our "O" ring surfaces, machined from ductile iron castings.*

These surfaces are in contact with gasoline, and normal atmospheric conditions. We would appreciate your recommendations to prevent corrosion pitting on these surfaces.

B. B.

Answer: We are not familiar with the mechanical requirements or physical limitations of these parts, but the first suggestion that occurs to us is that these surfaces may be hard chromium plated to improve their resistance to corrosion. Possibly some other type of plating would be more effective in this particular case.

We are referring you to a source of information on a chromium plating process which has found application on many products that must resist corrosion. We are referring you to other sources of information on corrosion-resistant coatings.

Answer: We understand that these surfaces are static sealing surfaces and that there is no movement once the O-ring is seated in place—with the exception of disassembly of the parts involved. The surfaces are in contact with gasoline and moisture.

You mention that you have plated the parts with cadmium but are in doubt regarding the life expectancy of this surface. Many years ago some gasoline pump parts were plated in cadmium, and it was found that, after a short period of service, the cadmium was completely removed and the steel parts began to rust. An examination showed that the sulfur compounds in the gasoline, in combination with small amounts of moisture present, transformed the cadmium into cadmium sulfide which powdered off and left the parts without protection.

If electrochemical protection is desired, it is our opinion that zinc plating, followed by a chromate conversion coating over the zinc, would probably give much longer service than cadmium because the reaction with sulfur compounds is much slower.

You might also consider the use of a very heavy nickel deposit, say in the order of 0.003 to 0.005 inch thick if tolerances will permit. Nickel, as you know, does not give sacrificial protection such as cadmium and zinc, but it is not affected to an apreciable extent by an environment such as you describe.

M. M. B.

★ ★ ★

Cleaning Sheets Prior to Roller Coating

Question: *We are interested in contacting some company that can supply a vacuum-and-brush apparatus for cleaning our sheets just before they enter the coating rollers on our automatic roller coating system.*

J. R. R.

Answer: We are referring you to manufacturers of roller coating equipment, brush manufacturers and manufacturers of exhaust systems. We feel that these companies will be able to help you.

It is possible that an electrostatic cleaning system would be effective in solving your problem. We are also referring you to a source of information on this method.

New Equipment, Materials, Processes

Cleaning

Polishing

Plating

Paint Finishing

Fume Scrubber

Manufacturer: Heil Process Equipment Corp., 12901 Elmwood Ave., Cleveland 11, Ohio.

Equipment: A fume scrubber built specifically for removing highly corrosive fumes given off by titanium pickling baths.

Construction Features: Packed-tower-type scrubber, lined with Koroseal.

Fume scrubber for handling nitric-hydrofluoric acid fumes used in pickling titanium

Scrubbing solution, flowing counter to the motion of the air being scrubbed, is recirculated.

For more data circle 1 on Reader Service Card

★ ★ ★

Acid Copper Plating Process

Description: A recently introduced acid copper plating process called the Cuprex process is said to produce deposits that have excellent brightness, leveling and ductility. In operation the bath has excellent stability, it is stated.

The bath may be operated either as a still or cathode-rod-agitated solution, or with air agitation. When operated as a still or cathode-rod-agitated bath, it is not necessary to employ a copper strike to obtain good adhesion. As an air-agitated solution, the normal copper or nickel strike is required.

The bath is said to be outstanding in its throwing power characteristics and in leveling and hiding power. The deposit buffs easily.

Manufacturer: Harshaw Chemical Co., 1945 E. 97th St., Cleveland 6, Ohio.

For more data circle 2 on Reader Service Card

Resin for Baked Finishes

Description: A melamine-formaldehyde resin called Uformite MM-57 is said to provide exceptional gloss and speed of curing when used in baking enamels for automotive use, appliances and other metal products.

Finishes formulated with this recently introduced resin are also rated high in gloss retention, hardness, mar resistance and color retention. Alkali resistance and adhesion are said to be excellent.

Manufacturer: Resinous Products Div., Rohm & Haas Co., Washington Square, Philadelphia 5, Pa.

For more data circle **3** on Reader Service Card

★ ★ ★

Oil-and-Grease Remover

Description: Magnusol X-4 is formulated to remove grease and oil from bare steel and painted parts. It is made with a recently developed odorless emulsifier.

How to Use: One part Magnusol X-4 is mixed with six to ten parts water or six to eight parts kerosene, sprayed, brushed or wiped over oily surface. Pressure water rinse completes oil removal. Can also be used in tank cleaning operations (one part X-4 to four-six parts water, heat to 160-170 deg. F.).

Applications: Removing grease and oil from painted surfaces, bare metal; cleaning polished and buffed parts; removing grease from bearings.

Manufacturer: Magnus Chemical Co., Inc., 208 South Ave., Garwood, New Jersey.

For more data circle **4** on Reader Service Card

★ ★ ★

"Modular" Electrostatic Spray System

Description: A recently introduced "modular" electrostatic spray system contains all the equipment and controls

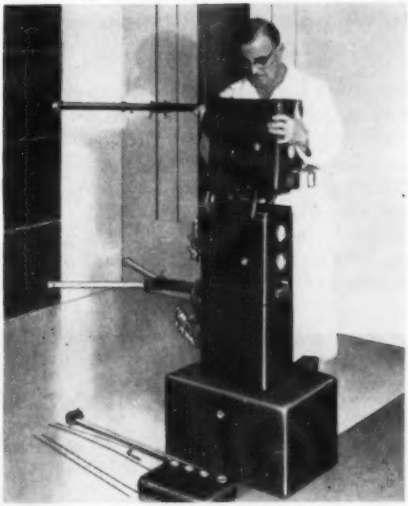


Fig. 1—Operator stacks second spray gun on Binks Modular electrostatic spraying system. Note Y-shaped yokes to support electrostatic grids and vertical spray gun rod support.

Fig. 2 — Installation complete, the operator prepares to test the spray pattern with test button (right hand) which actuates one gun at a time. Meanwhile, with his left hand he adjusts air pressure for spray guns.

necessary for painting products electrostatically. The modular unit can be used singly, or several such units can be clamped together or stacked up. Number of units employed depends upon configuration of the article being painted, production rate desired, and so on. The neatly packaged stations do not interfere with one another, and each station requires only one material and one air control, regardless of how many guns are in the station.

The system is suitable for painting metal products that can be attached to an overhead conveyor or to a conveyorized spindle.

Standard automatically triggered spray guns atomize the paint, which passes through an electrostatic field and receives an electrical charge. The products being painted are grounded, and thus as each product passes by on the conveyor, it attracts the charged paint particles. Paint escaping as overspray is greatly reduced, the manufacturer states.

The spray guns are mounted on a vertical rod that places the nozzle about 12 inches behind the electrostatic grid, which is supported by Y-shaped arms extending from the main support. Each gun can be adjusted up and down and to either side to provide the most effective coverage of a given part.

The modular "package" includes fluid and air pressure controls, regulators, valves, hoses, fluid and air gages, and so on. A test button on the instrument panel checks each spray gun

FORMAX
ZIP-TIP BUFFS

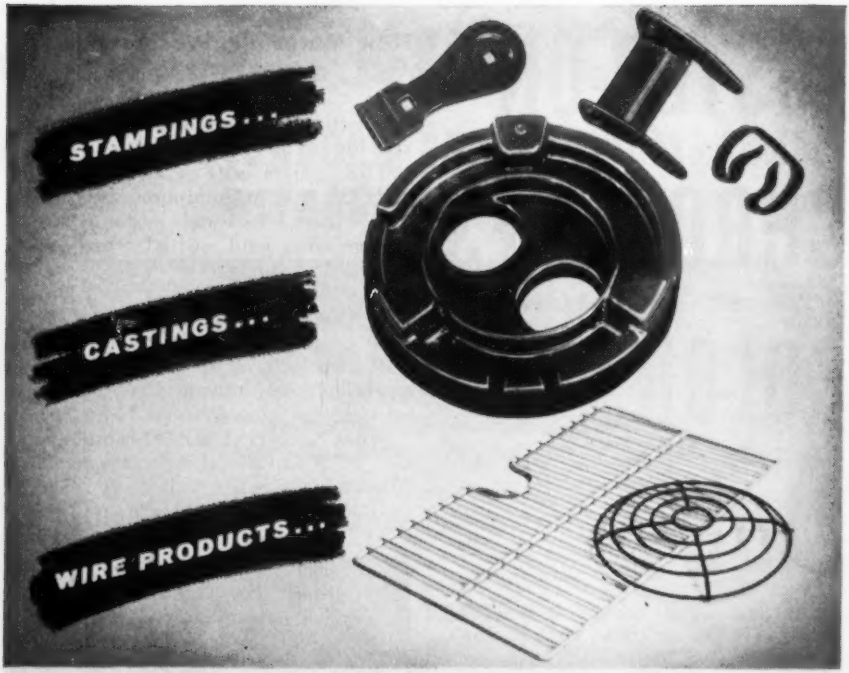
The radial segment construction of the Zip-Tip Buff permits it to perform equally well on flat or contoured surfaces. The cross-cutting movement of the spoke-shaped segments prevent work streaking while it breaks up straight-line patterns on the surface.

- Zip-Tips are available in a wide variety of all cloth constructions —also combinations of cloth and sisal.
- Zip-Tips are made of heavy-duty, bias-cut materials mounted on ventilated steel centers.
- Zip-Tips are extra thick and provide wider buff faces with greater compound retention capacity.
- Zip-Tips are perfectly balanced —require no raking.

Write for Descriptive Literature

FORMAX MFG. CORP.
DETROIT 7, MICHIGAN
"THE FOUR McALEERS"

For more data circle 351 on Postpaid Card



How many ways can you profit with new **CORVEL*** Fusion Bond Finishes?

No "ordinary" finish can match the challenging opportunities offered by CORVEL Cellulosic Finishing Powders.

CORVEL gives a premium appearance in beauty and controlled sheen—retains gloss and color. It assures uniform coverage even on sharp edges, corners, and projections. There's no worry about sag or drip marks, no bridging at intersections. And CORVEL finishes resist water, salt spray and sunlight—provide superior toughness, impact and abrasion resistance.

Parts can be clad uniformly in just one dip with thicknesses far exceeding those generally obtained with ordinary paints or enamels.

CORVEL finishes are applied by the WHIRLCLAD® Finishing Process. The heated object is dipped into a fluidized bed of CORVEL powders. The powders, which are in a state of "whirling suspension", assume flow characteristics similar to a liquid and bond by fusion to the part.

CORVEL Fusion Bond Finishes are resin powders of various types specially formulated for use with the WHIRLCLAD Finishing Process. This new production process for cladding metals and other materials with plastics is licensed exclusively in the U. S. and Canada by Polymer Processes, Inc., an affiliate company.

Write today for our new bulletin including data on all CORVEL Finishing Resins.

NATIONAL POLYMER PRODUCTS, INC. / Reading, Pa.

A subsidiary of The Polymer Corporation

**Polymer Corporation Trademark for finishing materials*

POLYPENCO

For more data circle 352 on Postpaid Card

LUSTER-ON®

PIONEER IN

CHROMATES

NOW OFFERS DECORATIVE

COLOR

ON ECONOMICAL

ZINC

At long last you can now secure beautifully bright, gleaming colors from a simple LUSTER-ON chromate dip process for your zinc plated small parts.

These are not just spotty identification colors. These are scintillating golds, yellows, blues, greens, violets, reds, brass and copper hues that will add glamor and sales appeal.

Especially Brilliant on Wire Goods

Be the first in your field to offer this sales booster. Write or wire today for the full story on low-cost LUSTER-ON COLOR.

Samples Gladly Processed Free

West Coast: Crown. Chem. & Engr. Los Angeles & San Francisco

Canadian Licensee: Alloycraft Ltd., Montreal

THE *Chemical* CORPORATION

75 Waltham Avenue, Springfield, Mass.

For more data circle 353 on Postpaid Card

for pattern without disengaging other spray guns in the station.

The system operates on 100,000 volts at five milliamperes maximum. The entire electrical system, power transmission and supply are interlocked for safety and will automatically shut off if a grounded object comes too close to the grid.

If production requirements dictate a change to hand spray, the system is easily removed and the booth can then be used for conventional hand spray.

Manufacturer: Binks Manufacturing Co., 3118-40 Carroll Ave., Chicago 12, Illinois.

For more data circle **5** on Reader Service Card

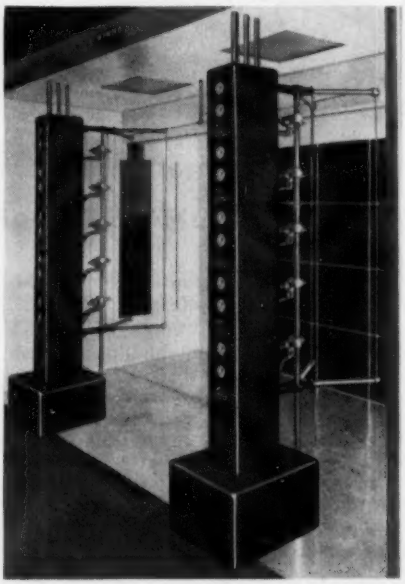
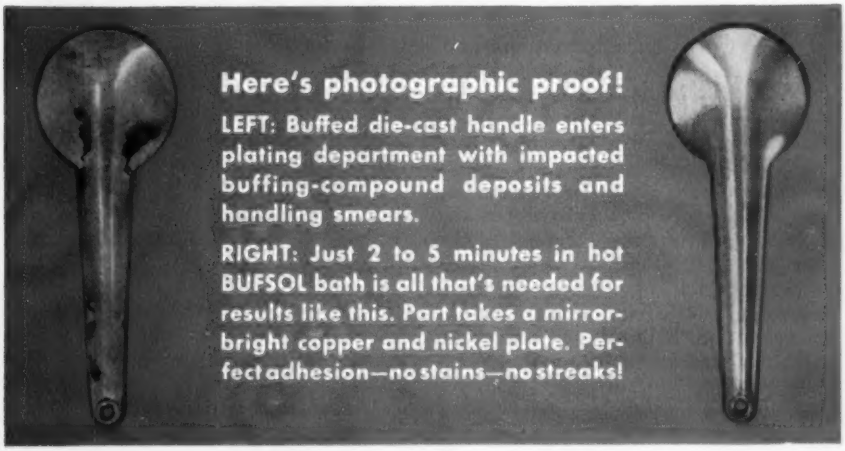


Fig. 3—Two five-spray-gun stations in a dry-type spray booth. Any number of spray guns, depending on product specifications or production needs, may be mounted on the modular station by clamping and stacking.

New Wyandotte BUFSOL

REMOVES STUBBORN BUFFING COMPOUNDS WITHOUT SOLVENTS


Here's photographic proof!
LEFT: Buffed die-cast handle enters plating department with impacted buffing-compound deposits and handling smears.
RIGHT: Just 2 to 5 minutes in hot BUFSOL bath is all that's needed for results like this. Part takes a mirror-bright copper and nickel plate. Perfect adhesion—no stains—no streaks!

. . . adaptable to every plating cycle

New BUFSOL is fast, safe effective . . . the perfect solution to your plating department's No. 1 headache — buffing-compound removal. Check these performance features:

Highly effective: BUFSOL assures bright, stain-free, adherent electrodeposits — removes most buffing compounds, tripoli, and rouges—rapidly removes water-dispersible-type compounds.

Concentrated: BUFSOL solutions have long life even when loaded with buffing compound. BUFSOL is completely miscible in water, is used as a dilute solution.

No plating bath contamination: BUFSOL, a liquid detergent concentrate, rinses easily from recesses and damaged rack coatings. Can't interfere with electrocleaner performance!

Safe on metals: BUFSOL will not etch, darken, or attack zinc-base die castings, copper, brass, steel, or aluminum when used at recommended concentrations and temperatures.

Essentially odorless: BUFSOL produces no obnoxious fumes or odors, requires no special ventilation.

For full information on new BUFSOL, and other Wyandotte metal-cleaning products, call in a skilled Wyandotte representative today! *Wyandotte Chemicals Corporation, Wyandotte, Michigan. Also Los Nietos, California. Offices in principal cities.*

Wyandotte CHEMICALS

J. B. FORD DIVISION

THE BEST IN CHEMICAL PRODUCTS FOR METAL FINISHING

For more data circle 354 on Postpaid Card

Batch-Type Ovens

Description: Recently introduced Type 110 and Type 40 batch-type baking ovens have several design features that are said to increase efficiency. These oven are designed for use with racks or trucks.

Features: Gas burners that will produce temperatures up to 600 deg. F. (oil, electrical and steam heating equipment also available); a duct system with adjustable slots along its full length to assure even temperatures throughout the oven; provisions for mixing fresh air with recirculated air; a centrifugal fan for exhausting the oven; completely unobstructed interiors; doors that open wide for easy access; built-in safety controls and instrumentation, with all instruments on a single control panel; top-mounted accessory equipment, to minimize floor space requirements.

Kirk & Blum Type 40 Batch-Type Baking Oven

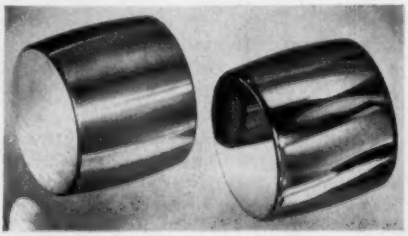
Manufacturer: Kirk & Blum Manufacturing Co., 3116 Forrer St., Cincinnati 9, Ohio.

For more data circle 6 on Reader Service Card

★ ★ ★

Barrel Finishing Process

Description: A barrel finishing process called "Cor-A-Brite" is said to be very effective in finishing high alloy steels. It produces a bright finish with a low microinch reading.



Identical high-alloy steel bearings before and after barrel finishing by Cor-A-Brite method.

have your silk screens made by **NAZ-DAR!**

Silk, Nylon or Metal Cloth

- Prompt Delivery anywhere in U. S.
- Absolutely TAUT screens for perfect registry to last impression of run.
- Perfect reproduction of your black and white drawing.
- Prepared by experienced technicians.

PERFECT FOR

TV SETS NAME PLATES TOYS DIALS
ASH TRAYS CHASSIS PRINTED CIRCUITRY

Use NAZ-DAR Weatherproof Silk Screen Enamel

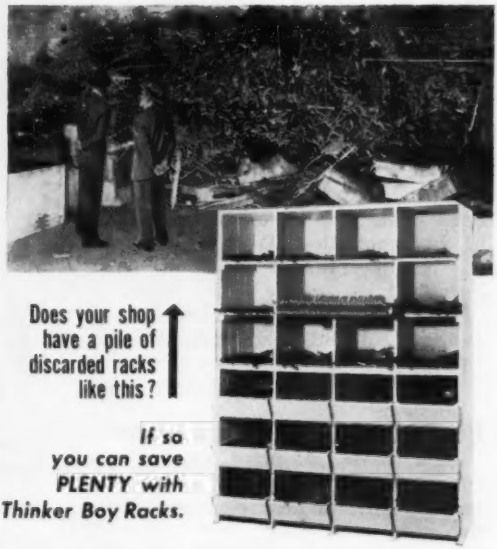
Uniformly high opacity

Write today for screen and ink information, Dept. P-6.

The NAZ-DAR Company
461 Milwaukee Ave. • Chicago 10, Ill.
inks • varnishes • lacquers • silks
screen plates • squeegees • films

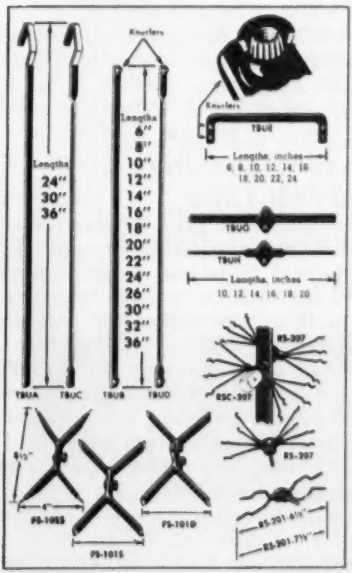
For more data circle 355 on Postpaid Card

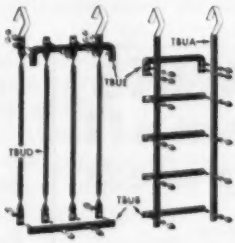
How to Convert Waste into PROFIT with Thinker Boy Plating Racks



Does your shop have a pile of discarded racks like this?

If so you can save PLENTY with Thinker Boy Racks.





Thinker Boy Plating Racks are made of mass-produced insulated parts that assemble with a leakproof seal.

When no longer needed you can disassemble the racks and reuse the parts or store the parts for future use in surprisingly small space.

With a supply of Thinker Boy Parts you can assemble fully insulated racks of your own design in minutes.

When you use Thinker Boy Racks you can quickly replace damaged tips, with leakproof insulation seal—keep racks in service at full capacity—no dipping or waiting.

These great economies are possible because Thinker Boy Racks are made of standard, precoated parts assembled with screws. Disassembly or conversion to other styles is fast, easy and extremely practical.

A new illustrated bulletin, just off the press, shows how to make racks designed with Thinker Boy Sections. Send for your copy today — it's the key to revolutionary reduction in plating rack costs.

Ask your BELKE Service Engineer or send for illustrated bulletin.

For more data circle 356 on Postpaid Card

The process is carried out in standard barrel finishing equipment with a single chip mass.

According to Roto-Finish process engineers the Cor-A-Brite Process will produce a brighter finish on hardened steels than on unhardened steels of the same alloy. Tests indicate that the results obtained are in direct relation to the quality of the steel.

Manufacturer: Roto-Finish Co., 3704 Milham Rd., Kalamazoo, Mich.

For more data circle **7** on Reader Service Card

★ ★ ★

Portable Air Compressor

Description: A small (¾-h.p.) air compressor, Model 555, is compact, easy to move about the plant, delivers five c.f.m. at 45 p.s.i.

The unit is direct driven, has integral automatic unloader built into the cylinder head so that unit works only when needed. Ample storage tank, pulsation chamber with drain cock, large intake filter and muffler. Motor: 110 or 220 volts; 60 cycle, single-phase.

Eclipse Model 555 Portable Compressor

Manufacturer: Eclipse Air Brush Co., 381 Park Ave., Newark 7, N. J.

For more data circle **8** on Reader Service Card

★ ★ ★

Pressure-Sensitive Lead Foil Tape

Description: A pressure-sensitive lead foil tape designated Permacel EI 3879 is said to release from its liner easily, conform to various configurations well, adhere well to the part being masked.

Typical Applications: Specially compounded lead foil makes the tape useful in electroplating, where it acts as a "thief" in preventing edge build-up. The foil tape is also useful in chemical milling.

Manufacturer: Permacel-Lepage's, Inc., New Brunswick, N. J.

For more data circle **9** on Reader Service Card

BIG TANKS
. . . or small
to fit *your* needs

Made to meet *your* requirements . . . from only the finest woods. Over 75 years experience. Get free estimates.

WOOD TANK DIVISION

Kalamazoo | TANK & SILO CO.

1571 Harrison Street, Kalamazoo, Michigan

For more data circle 357 on Postpaid Card

FOR FAST, ECONOMICAL

BUFFING AND POLISHING—

ATLANTIC

GREASELESS COMPOUNDS

NEW PLASTIC CONTAINER—

ELIMINATES COMPOUND WASTE

REDUCES APPLICATION TIME

Here's a new waterproof plastic container for Atlantic Greaseless Compounds that saves time and money on buffing and polishing operations. Now, there is no need for operator to spend time stripping away cover . . . plastic container wears away as stick is applied to spinning buff. And, costly waste is reduced since container exposes only the compound that is in contact with the buff. Standard aluminum tube and foil-lined fibre board container available if desired.

Atlantic Compound combines continuous research, high grade materials and rigid quality control of manufacturing to assure you of a product with extremely high uniformity.

Write for free sample on your letterhead.

THE ATLANTIC COMPOUND CO.

1862 BALDWIN STREET, WATERBURY, CONNECTICUT

For more data circle 358 on Postpaid Card

Oven Heater

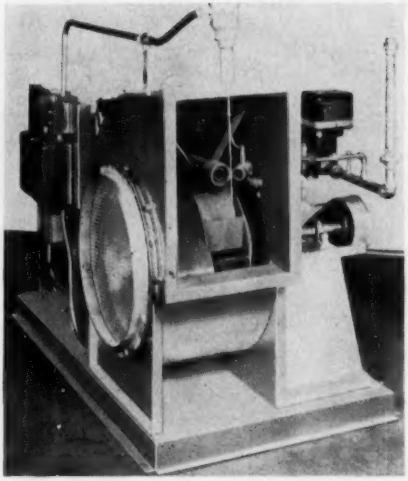
Description: A compact direct-fired gas heating unit that combines fan and mixing chamber in one "package" is useful as either an oven heater or make-up air heater. Called the "Torrid Heater," this unit incorporates a conventional non-overloading-type fan and burner equipment suitable for the type of service.

When this unit is designed for use as a make-up air unit, it will supply up to 100,000 c.f.m. and 10,000,000 B.t.u.

When designed as an oven-heating unit, the Torrid Heater works as a convection-type heater, supplies heated air at rates up to 35,000 c.f.m. and 8,000,000 B.t.u. It rapidly circulates heated air through the oven, allows close temperature and ventilation control. Further data is available from the manufacturer.

Manufacturer: David-Ludwig Co., 14290 Goddard, Detroit, Mich.

For more data circle 10 on Reader Service Card



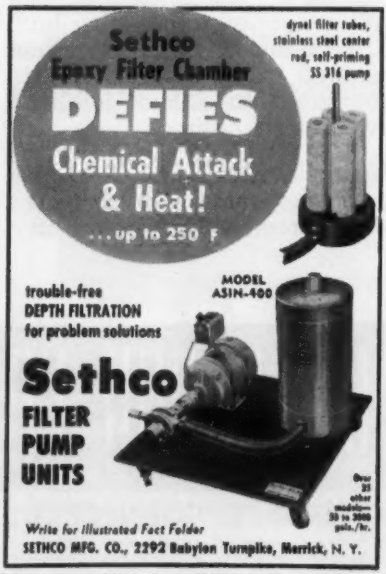
David-Ludwig "Packaged" Torrid Gas-Fired Heater: for heating ovens or make-up air

★ ★ ★

Tack Rag

Description: The "Dustix" tack rag, a cheese cloth chemically treated to

Dustix Tack Rag: for dust-free finishes



Foor more data circle 359 on Postpaid Card

NOW a SELF-ALIGNING

Contact Wheel

NEW R-57
Eliminates
VIBRATION
RUNS
SMOOTHER

Automatically aligns. New R-57. Rubber Arbor Hole Hub draws up tightly on spindle even when worn spindles are used . . . Eliminates Vibration . . . Low Operating Noise . . . Maximum efficiency of wheel, belt and machine.

ADDED R-57 FEATURES:

Durable Rubber Tire and Hub vulcanized to steel discs. Proper serrations for smooth action. Lightweight, maximum safety. Available in plain or serrated faces in all durometers, for every grinding and finishing operation.

Write today for complete information and prices.

CHICAGO RUBBER COMPANY, INC.

651 Market Street • Waukegan, Illinois

For more data circle 360 on Postpaid Card

be "tacky" so as to pick up dust prior to paint finishing, is useful in wiping off sanding residues, lint and other foreign particles on articles that are to receive a smooth, blemish-free paint finish. The cloth retains its tack permanently, will not harden or catch fire, the manufacturer states.

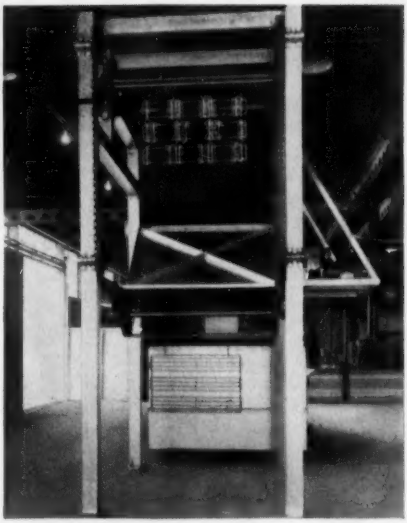
Manufacturer: Modern 1st Aid Necessities Co., Industrial Div., 737 W. Randolph St. Chicago 6, Ill.

For more data circle 11 on Reader Service Card

★ ★ ★

Conveyorized Paint-Stripping Process

Description: A conveyorized paint stripping machine incorporates the Kolene molten salt bath process, makes it possible to strip paint-laden racks and hooks in one to three minutes.



Kolene's Conveyorized Fused-Salt Paint Stripping Machine: fast paint removal

Racks that are to be stripped are loaded onto the stripping machine's conveyor, go through automatically timed cycle, return to the same operator for unloading.

The conveyorized setup can be operated continuously, sludge removed without shutdown.

Manufacturer: Kolene Corporation, 12890 Westwood Ave., Detroit 23, Michigan.

For more data circle 12 on Reader Service Card

★ ★ ★

Scale Remover

Description: Rustbuster, an alkaline derusting and descaling compound, removes deep rust and scale quickly, also removes paint and varnish, oil and grease.

Operation: For pitted rust removal or heat scale, two to three pounds of Rustbuster per gallon of water at a

RAMCO PRODUCT

METAL PARTS WASHERS

SPRAY
DIP
MONORAIL

DRUM
BELT
MANUAL

Washing
Phosphating
Pickling
Degreasing
Drying—Spotless

Used by FORD • GENERAL MOTORS • GENERAL ELECTRIC • AVCO • WESTERN ELECTRIC

Ultrasonic Equipment from 50 watts up. Engineering Representatives in principal cities.

SEND FOR LITERATURE.

RAMCO EQUIPMENT CORP.

Division of Randall Manufacturing Co., Inc.

811 Edgewater Rd., New York 59, DAyton 3-3900

For more data circle 361 on Postpaid Card

NEVER ANY BATH CONTAMINATION

from Unichrome Coating 218X
. . . one more of its advantages

It's unanimous . . . racks insulated with completely inert Unichrome Coating 218X are fit to work in any bath without causing contamination. Nothing leaches out of this top quality vinyl plastisol in plating or anodizing solutions. Especially significant is its approval by leading developers of bright nickel solutions.

And because Coating 218X won't chip, tear or blister . . . retaining its slick, free-rinsing surface . . . it helps to control contamination from drag-in as well.

Along with this performance goes phenomenally long life. Economy-wise platers have had long experience with Coating 218X . . . some up to 10 years overall. All agree that using the best quality at the outset saves most money in the long run.

Are you benefiting by the coating that stands out on all five major counts? Send for details.

Are you using the rack coating that gives you ALL FIVE?

Unichrome Coating 218X approved by these developers of bright nickel processes:
Hanson-Van Winkle-Munning Company
The Harshaw Chemical Company
McGean Chemical Company
Metal & Thermit Corporation
The Seymour Manufacturing Company
The Udylite Corporation

1. *Built-in cure indicator assures maximum performance*
2. *No contamination of plating baths*
3. *Ability to be rebaked for patching*
4. *Nationwide set-up of expert applicators*
5. *Highly qualified technical service.*

UNICHROME

First name in plastisols for all plating purposes . . .
METAL & THERMIT CORPORATION

GENERAL OFFICES: RAHWAY, NEW JERSEY
Pittsburgh • Atlanta • Detroit • E. Chicago • Los Angeles
Member, Vinyl Dispersions Division of the SPI
In Canada: Metal & Thermit—United Chromium of Canada, Limited, Rexdale, Ont.

For more data circle 362 on Postpaid Card

temperature of 180 deg. F. removes rust and scale within one to ten minutes, depending upon degree of corrosion. In extreme cases, it may be necessary to increase concentration, soaking time, or both. Electrocleaning at 90 a.s.f. also speeds action of this material. After rust or scale has been removed, parts are rinsed and dried prior to finishing.

Manufacturer: Octagon Process, Inc., 15 Bank St., Staten Island 1, New York.

For more data circle **13** on Reader Service Card

★ ★ ★

Liquid Buffing Compound

Description: A buffing compound designated Stevens 58-L Liquid Tripoli has improved cutting, coloring and cleaning properties, does excellent job of buffing non-ferrous metals, including die castings, copper plate, brass and aluminum.

Stevens 58-L Liquid Buffing Compound: for automatic buffing of non-ferrous metals

Manufacturer: Frederic B. Stevens, Inc., 1800 18th St., Detroit 16, Mich.

For more data circle **14** on Reader Service Card

★ ★ ★

Airless Automatic Spray Gun

Description: A spray gun designed for use in automatic hydraulic and airless spray painting incorporates several advantageous features.

Frictionless seals allow the gun to operate at speeds up to 3,000 cycles per minute.

Needle packings are eliminated. The needle floats in the material being sprayed, is controlled by a finger that operates within a teflon boot.

The small air cylinder that triggers the AG-100-B has a frictionless di-

To page 114→

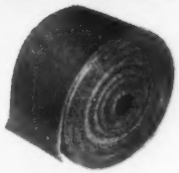
Randolph
EXPERIENCE and RESEARCH MEAN
BETTER FINISHES
for your products
LACQUERS • ENAMELS
DOPES • THINNERS
CLEAR METAL FINISHES
COLORED LACQUERS
CLEAR S.G. FOR METAL
TEXTURE ENAMELS
SPECIALIZED PRODUCTION FINISHES
AIRCRAFT FINISHES
Depend on us for Prompt Delivery
RANDOLPH PRODUCTS CO.
CARLSTADT, N. J.
For more data circle 363 on Postpaid Card

Bond® TACK CLOTH for a SPECK-FREE FINISH EVERY TIME!

SAVE TIME AND WORK WITH BOND TACK CLOTHS — NOW AVAILABLE IN HANDY ROLLS OR CUT BULK—WHITE OR GOLD —IN FOUR DIFFERENT TYPES OF CLOTH

Get your Tack Cloth packed just the way it's easiest for you to use . . . either in 150 yard rolls of 36″ wide cloth or in handy cartons . . . 100 or more Tack Cloths to the carton.

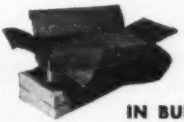
No matter which way you buy it, you can be sure that every square inch will stay SOFT and TACKY until the very last bit is used up! The Cut Bulk size is 18″ x 36″ . . . folded to 4½″ x 18″ or 9″ x 18″ for ease of handling. ALL BOND TACK CLOTH is Spontaneous Combustion Proof, Lint-Free, and Wax-Free. Gives a sparkling speck-free Finish every time. Clean and Sanitary. No waste. Choice of Standard, Extra Tacky or Less Tacky.



IN ROLLS
Cut off any size piece to use as needed.

TRY THEM AND COMPARE RESULTS.
Samples Gladly Sent Upon Request.

Bond® **CHEMICAL PRODUCTS CO.** 2639 N. CLYBOURN AVE. CHICAGO 14, ILLINOIS
"The Tacky Wiper Specialist"

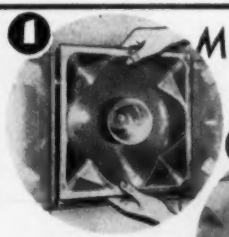


IN BULK
Cut and folded. Ready to use.

ALSO INDIVIDUALLY PACKED IN GLASSINE ENVELOPES—144 TO THE CARTON.
A WARRANTY OF SATISFACTION IN EVERY CARTON.

For more data circle 364 on Postpaid Card

Make Your Old BULB-TYPE OVEN More Efficient by Installing driQuik F. R. Assemblies



Replace **IN TWO EASY STEPS**

TEMPERATURE CONTROL, ALSO
With the change-over you can enjoy accurate control; from 0% to 100% of rated capacity. Write for literature giving complete data.

You can free yourself from the expense of replacement of burned-out infra-red bulbs by installing dri-Quik F. R. Assemblies. These units fit into your present oven and enable you to save most of the cost of a new oven. Take advantage of greater efficiency of driQuik ceramic-type generators.

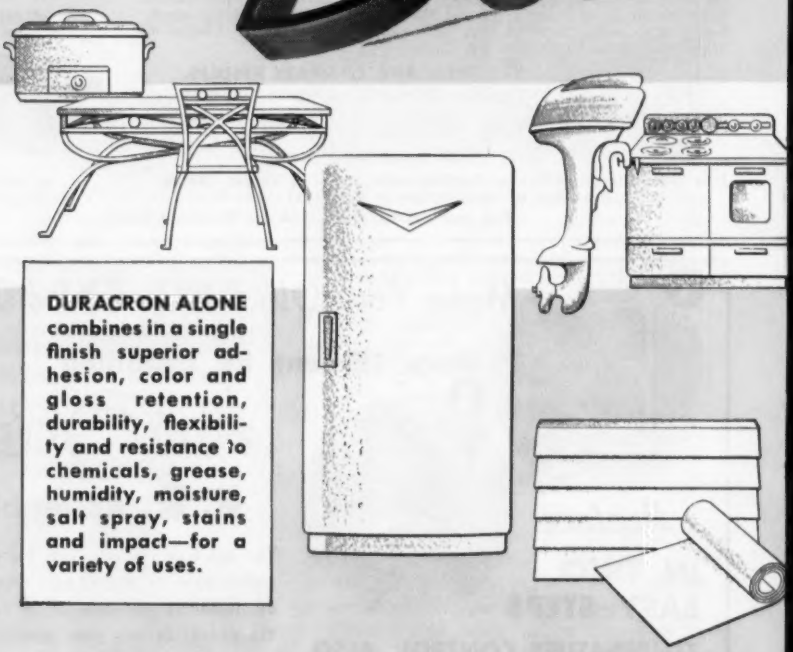
driQuik DIVISION
DRY CLIME LAMP CORP.
GREENSBURG, INDIANA

For more data circle 365 on Postpaid Card

One coat does the work

AMAZING NEW

DURA



DURACRON ALONE combines in a single finish superior adhesion, color and gloss retention, durability, flexibility and resistance to chemicals, grease, humidity, moisture, salt spray, stains and impact—for a variety of uses.

PITTSBURGH® PAINTS

75th ANNIVERSARY 1883—1958

SYMBOL OF SERVICE FOR SEVENTY-FIVE YEARS

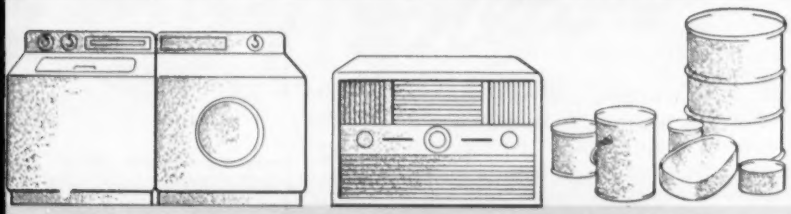
PITTSBURGH PLATE GLASS COMPANY

IN CANADA: CANADIAN PITTSBURGH INDUSTRIES LIMITED

# of two . . . with

CRON

THERMO-SETTING ACRYLIC ENAMEL



Now . . . tailored to your finishing needs!

Today's biggest news in finishes is the development of amazing DURACRON in a variety of formulations for many end uses. Since its introduction, this revolutionary chemical composition has convincingly demonstrated its superiority to ordinary baking enamels. *One coat does the work of the conventional two-coat finishing system.*

• **Now . . . DURACRON** is made available in a wide range of properties to enhance sales appeal and utility of products on which it is used. It can be sprayed, dipped or roll-coated. It can be cured at lower temperatures. And it can be used either as a one-coat enamel or as a topcoat with various primers. Mail coupon for more information.

Mail this coupon today for new book

Pittsburgh Plate Glass Company, Industrial Finishes Division, 1 Gateway Center, Pittsburgh, Pa.

Gentlemen: Please send me your new brochure, containing information about DURACRON Thermo-Setting Acrylic Enamel, and how it reduces manufacturing costs.

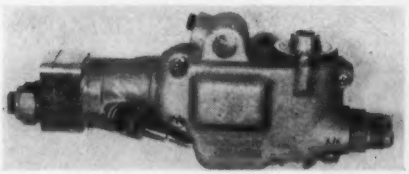
Name_____

Company_____

Address_____

City_____ **State**_____

For more data circle 366 on Postpaid Card



Improved Airless Automatic Spray Gun

aphragm rather than cup leathers and rubbers.

Paint hoses and air hoses are at the rear of the gun, which makes the gun easier to clean and maintain.

A specially designed carbide needle and seat helps to withstand the severe abrasion imposed on the nozzle by airless spray.

Weight has been reduced to two pounds. Further data is available from the manufacturer.

Manufacturer: Nordson Corporation, Subsidiary of U. S. Automatic Corp., Amherst, Ohio.

For more data circle **15** on Reader Service Card

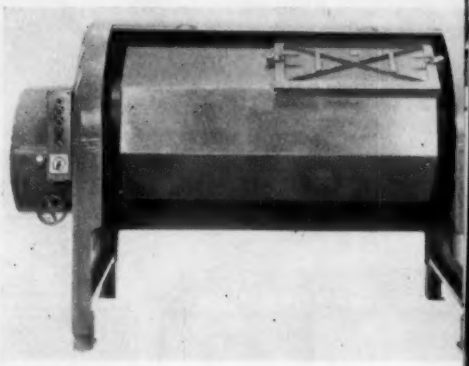
★ ★ ★

Barrel Finishing Machines

Manufacturer: Crandall Engineering & Manufacturing, Inc., Vicksburg, Michigan.

Equipment: No. 30 Series of barrel finishing machines, with capacities of five to 25 cubic feet.

Construction Features: Variable-speed V-belt drive plus other design features said to result in smooth operation; vulcanized moldings on the sealing surfaces of the cylinder opening and cylinder door are said to ensure



Crandall No. 30 Series Barrel Finisher

leak-proof operation under all circumstances; push button controls, with positive safety jogging; variable-speed by gear reduction is standard; fully enclosed motor and drive. Magnetic brake. One to five-h.p. motors, depending upon the size of the machine. All models have safety pressure release. Speed indicator reads in r.p.m.

For more data circle **16** on Reader Service Card

YOUNG BROTHERS *Baking and Drying* **OVENS**

designed and built for every product and process requirement

Batch and Conveyor types up to 1000° F.

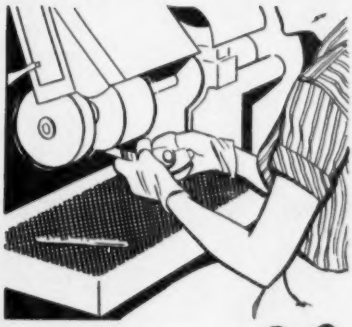
Write for Bulletin 157

YOUNG BROTHERS CO. 1830 Columbus Road Cleveland 13, Ohio

Over 60 years of service

For more data circle 367 on Postpaid Card

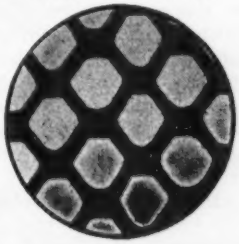
PROTECT FINE PLATED SURFACES



with **RP** *Neotex*

Neotex . . . the open pattern Neoprene rubber matting, protects highly polished finishes when used to line any surface where goods are worked on or in transit. In roll form, Neotex can be easily cut to any size or shape . . . it's rugged and long lasting, resistant to abrasives, caustics, heat, acids, oils, oxidation. Open pattern permits buffing compounds to settle. Available in a fine or coarse pattern. Write for complete information.

RP® *Neotex*



RESEARCH PRODUCTS CORPORATION

Dept. 76, Madison 10, Wis.

For more data circle 368 on Postpaid Card

Another **fine** product made **finer** . . .

with the PARAMOUNT "Finishing Touch"

MacGregor Golf Co. uses Paramount Felt Wheels as contact wheels for abrasive belts in finishing golf clubs. "They last longer than other contact wheels," says MacGregor's Albert F. Armstrong. "They are the only wheels that will hold up for small work and give a fine finish. Hardness is important in our operations and I find we can get a Paramount Felt Wheel in the exact hardness we require. When the wheels are worn we dress them down for use in other operations. Other wheels give only ¾" use, then require a new tire."

For precision finishes so important to your product's appearance, always specify Paramount Felt Wheels. Call your jobber today.

Paramount

Felt Wheels, Bobs, Sheet Felt

Bacon Felt Co. 447 West Water St., Taunton, Mass.

For more data circle 369 on Postpaid Card

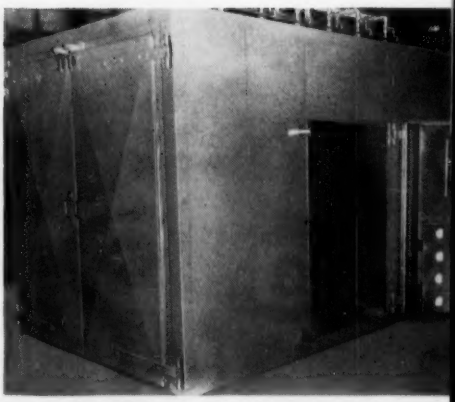
High-Temperature Test Chamber

Description: A high-temperature test chamber is designed to prevent accidental fire at above-normal temperatures.

The high-temperature (650-800 deg. F., if required) oven maintains a nitrogen atmosphere at all times when temperatures are above room ambient. To maintain this fireproof atmosphere, the doors must be closed once the heating cycle has been started and remain closed until the chamber has returned to room temperature.

The high-temperature chamber includes apparatus for elevating and decreasing the temperature at a prescribed rate.

All electrical controls, heating elements, controls and motors are explosion proof. Overall dimensions: 60 by 96 by 72 inches high.



Grieve-Hendry High-Temperature Chamber

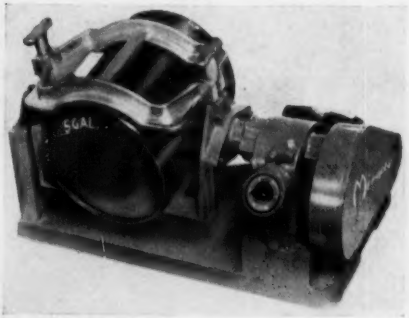
Manufacturer: Grieve-Hendry Co., 1414 W. Carroll Ave., Chicago 7, Ill.

For more data circle **17** on Reader Service Card

★ ★ ★

Closed-Container Paint Mixer

Description: Miracle Marvel Model MCG-5 Paint Rejuvenator will shake a five-gallon container, a four-gallon carton or a two-gallon container. Will



Paint Rejuvenator: shakes five-gallon cans

For Platers, Silversmiths, Jewelry Mfgrs., Makers of Watches, Clocks and Electronics and other metal finishers.
Supplied in straight or crimped brass, steel, nickel silver or stainless steel wire in sizes .0025 to .006 and in bristle, fibre or Nylon. Special sizes and shapes to order.
Write (Dep't. P) on your letterhead for catalog and price list

DIXON & RIPPEL, INC. Box 116 Saugerties, N. Y.
ESTABLISHED 1856

For more data circle 370 on Postpaid Card

DEPENDABLE

PPI

PRODUCTS

PLATING RACKS
RUBBER DRUM LINERS
ACID CONTAINERS
ANODE HOOKS
FIBERGLAS TANKS
DUCTS & HOODS
PLASTIC COATED DIPPERS & PAILS
STEEL & STAINLESS STEEL TANKS
LEAD & PLASTIC LINED TANKS
POLYETHYLENE PAILS & CONTAINERS
FUME SEPARATORS
PLATE COILS
LEAD ANODES
DEGREASING SOLVENTS
SILVER BRIGHTENER

SAVE ON NICKEL USAGE . . . with PPI UZALL ANODE HOOKS . . . .

Uzall Anode Hooks are made of ⅜ in. Square, Monel or Nickel plated Steel—then Plastisol coated. These hooks are furnished with rubber anode protectors. Uzall Hooks can be supplied in length sizes from 4 in. thru 8 in.

ADVANTAGES:

- Conserves on nickel usage
- Cuts down on nickel scrap
- Hook can be used over and over again because it is protected by a plastisol coating
- The rubber anode protector protects hook threads from corrosion and current attack

Plain PPI Anode Hooks

Furnished in all sizes 3 in. thru 8 in. (1 in. length increments)
Steel — Copper — *Monel

* *Monel Hooks subject to availability of material*

Prices Quoted Upon Request

PLATING PRODUCTS, Inc.

1509 N. WASHINGTON
KOKOMO, INDIANA

For more data circle 371 on Postpaid Card

Electro NON-INFLAMMABLE Cold Stripper

The easy TIME and MONEY SAVING answer to PAINT REMOVING.

Enamels, even *high* bake, vinyls, epons, hammers, wrinkles, alkyd paints, primers—in fact—every known hard to remove finish yields to ELECTRO COLD STRIPPER in quick time—often seconds. Eliminate the problem of paint build-up on conveyor baskets, carrying racks, hooks, etc., with an ELECTRO COLD STRIPPER in-line or batch set-up.

COMPLETE DATA AND TESTING SAMPLES AVAILABLE — GRATIS

ALLIED FINISHING SPECIALTIES CO.

2641 W. GRAND AVENUE • CHICAGO 12, ILLINOIS PHONE: AR 6-2222

For more data circle 372 on Postpaid Card

thoroughly mix contents of a five-gallon can in only three to seven minutes, depending upon condition of the material, without opening container.

Manufacturer: Miracle Paint Rejuvenator Co., 500 N. Robert St., St. Paul 1, Minn.

For more data circle **18** on Reader Service Card

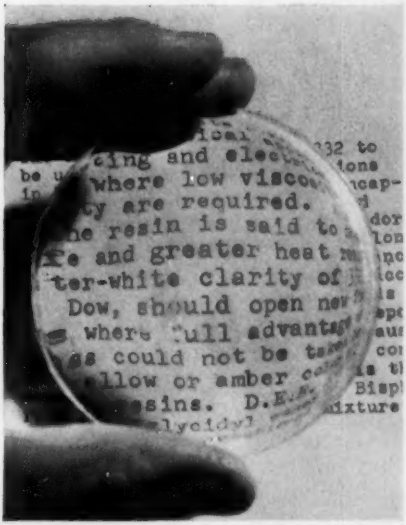
★ ★ ★

Liquid Epoxy Resins

Manufacturer: Dow Chemical Company, Midland, Michigan.

Description: Three liquid epoxy resins are converted into hard solids when catalyzed under proper conditions. The solidified resins are tough and durable, the manufacturer states.

One of the resins, called D.E.R. 332, is water clear, has low viscosity. D.E.R. 331 is a standard unmodified resin. D.E.R. 334 is a modified low-viscosity resin.



Dow's Recently Introduced Clear Epoxy Resin

Applications: The recently introduced resins are of interest to the tooling, electrical, paint, adhesive, reinforced plastic, and chemical industries. Specifically, D.E.R. 331 is suitable for use in tooling, casting, adhesives, and electrical encapsulating; D.E.R. 334 is formulated to be used in laminating.

For more data circle **19** on Reader Service Card

★ ★ ★

Cyanide Copper Plating Process

Description: A recently introduced high-speed cyanide copper plating process produces a bright, ductile deposit by the use of a single addition agent designated as Cynorex No. 1.

The Cynorex copper process is said to produce deposits with unusual brightness; a smooth, fine grain; and excellent ductility.

WHY

DO YOU ALLOW RAPID WEAR ON YOUR BUFFING FIXTURES

when they can be *FUSECOATED* to last up to a year or more? We specialize in protective coatings for fixtures of all kinds and would like to add your name to our long list of regular customers.

Write

for our general information folder or send sample fixture or drawing of same to be FUSECOATED.

Fusion Metal Coating Co.

25493 West 8 Mile Road

Detroit 19, Mich.

For more data circle 373 on Postpaid Card

"For that Finishing Touch"

Pentrate®

the finest black oxide available at low cost with trouble-free operation. Produces jet black finish on all steel, regardless of composition or hardness.

Write for literature, send samples for treatment or give us your problems — our laboratory staff is available to help solve them.

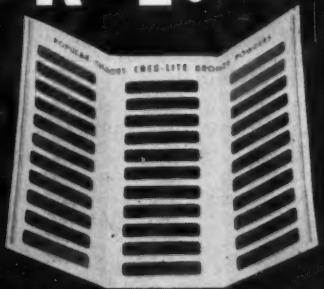
A new folder describing the full line of black oxide finishes, chromate finishes, cleaners, oils, and strippers is yours for the asking.

HEATBATH
CORPORATION
SPRINGFIELD 1, MASS.
or 701 North Sangamon Street, Chicago 22, Illinois

35 Years of Service to the Heat Treating and Metal Finishing Industry

For more data circle 374 on Postpaid Card

FREE! NEW COLOR CARD



FULL RANGE OF 33 COLORS FOR IMMEDIATE DELIVERY

CRES-LITE

Pure Metallic

BRONZE POWDERS

Unequalled for smoother, more brilliant Plated-Effect Finishes —by spray, dip or flow coating.

IN STOCK—tremendous selection of colors including popular *metallic pastels.*

COLORS MATCHED—with no variance in quality, color, or lustre from batch to batch. Fast service guaranteed.

SPECIAL COLORS—Over 25 years experience in creating special colors and shades for the plastic and metal finishing trades, on request. Satisfaction assured.

Write for Free Color Card of in-stock Cres-Lite Bronze Powders

CRESCENT BRONZE POWDER CO.
118 W. ILLINOIS STREET, CHICAGO 10
1841 S. Flower St., Los Angeles 15

For more data circle 375 on Postpaid Card

In operation, the bath has high tolerance to metallic impurities. The brightener itself has excellent stability, is not removed by carbon filtration. Air agitation can be used. Compatible wetting agents are available.

Manufacturer: Harshaw Chemical Co., 1945 E. 97th St., Cleveland 6, Ohio.

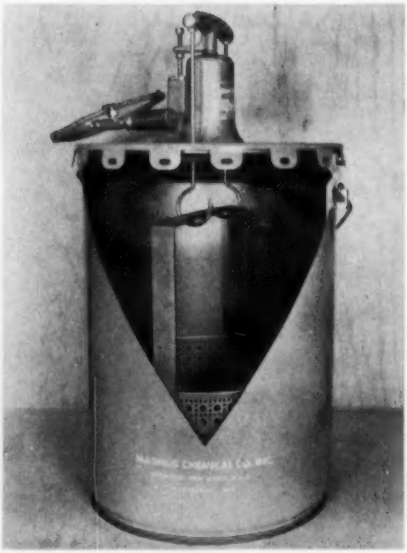
For more data circle **20** on Reader Service Card

★ ★ ★

Air-Powered Parts Cleaner

Description: The Magnus Mini-Dip air-powered parts cleaner, a bench-type cleaning machine with built-in air motor, fits the top of any five-, six-, or fifteen-gallon open-head container.

The unit agitates a basket of small parts up and down 100 times a minute. This vigorous motion of the parts in the cleaning solution effectively scrubs the parts and shears dirt from the surfaces. Will handle up to 50 pounds of small parts per load.



Magnus Air-Powered Small-Parts Cleaner

Manufacturer: Magnus Chemical Co., Inc., 208 South Ave., Garwood, New Jersey.

For more data circle **21** on Reader Service Card

★ ★ ★

Aluminum Bright Dip

Description: A non-fuming aluminum bright dip known as Kenvert No. 46-A is said to eliminate corrosive brown nitrogen oxide fumes from the bath and work in transfer. As a result, less acid is consumed, working conditions are more pleasant, and less exhaust capacity is needed, the manufacturer states.

A companion product called Kenvert No. 46-L is formulated to be used in brightening Lurium grade aluminum and its alloys. This bath is also non-fuming.

Both baths are said to have good

ALL TITANIUM
ANODIZING CYLINDER
For bulk processing of screws, bolts, rivets, etc.
Made entirely of Pure Titanium to resist the effect of all acids used in processing.
(Shipped from stock)
Price—Lots of 3—$65.00 ea.
Single unit $67.50
DETROIT INDUSTRIAL PROCESS COMPANY
9301 French Road
Detroit 13, Mich. WAlnut 1-3800
For more data circle 376 on Postpaid Card

stability and to be easy to control.

Manufacturer: Conversion Chemical Corp., Rockville, Conn.

For more data circle **22** on Reader Service Card

★ ★ ★

Light-Fast Red Paints

Description: A series of red pigments designated "Monastral Reds" combines properties which will make possible production of paint and other coatings with greatly improved light-fastness and exterior durability, the manufacturer states.

Red finishes have long been weak in lightfastness and general exterior durability, especially in pastel shades. These pigments, said to largely eliminate the objections to reds, combine excellent lightfastness, brilliance, bleed resistance, chemical inertness, working properties, and shade range. The colors produced are said to be intense, so that strong colors can be produced, even when "let down" with whites or metallic pigments.

One of the first uses for this pigment is expected to be for automobiles, where red finishes have long given headaches to the manufacturer in service durability.

The Monastral reds are also expected to be useful in applications where the finish must have alkaline resistance.

Preliminary production of the pigment is now under way, and commercial quantities should be available by fall.

Manufacturer: E. I. du Pont de Nemours & Co. (Inc.), Pigments Dept., Wilmington, Del.

For more data circle **23** on Reader Service Card

A CORROSION-PROOF THERMOSETTING COMPOUND FOR LINING

Chemical Storage Tanks • Processing Tanks
Pickling & Plating Tanks • Pits & Foundations

This new lining material resists the effects of alkalies, acids and solvents. COROLINE can be easily applied with trowel or brush in thicknesses ranging from 1/16" to 3/16". COROLINE can be applied by the customer or by Ceilcote personnel in the field or factory.

Write today for the COROLINE TECHNICAL BULLETIN

COROLINE CEILCOTE

8018-CC

THE CEILCOTE CO., Inc.

4848 Ridge Road • Cleveland 9, Ohio

*Birmingham, Alabama • Buffalo, New York • *Chicago, Illinois • *Cleveland, Ohio • *Detroit, Michigan • Evansville, Indiana • *Houston, Texas • Kansas City, Missouri • Los Angeles, Calif. • *San Francisco, California • Seattle, Washington • Springfield, Massachusetts *Warehousing

For more data circle 377 on Postpaid Card

Chromate Coating

Description: Ker-Chro-Mite P produces a clear or olive drab chromate coating on zinc or cadmium. This coating is economical, forms an excellent base for paint, gives good corrosion protection in thin deposits.

Manufacturer: Kosmos Electro-Finishing Research, Inc., 140 Liberty St., Hackensack, N. J.

For more data circle **24** on Reader Service Card

★ ★ ★

Special Lead Anodes

Manufacturer: Heil Process Equipment Corp., 12901 Elmwood Ave., Cleveland 11, Ohio.

Materials: Special and conforming anodes.

Description: Lead anodes made as specified for specialized plating requirements. Available in any size, shape or alloy desired.

Typical Uses: Chromium plating, anodizing, electropickling, electrogalvanizing, lead and lead-alloy plating.

For more data circle **25** on Reader Service Card

Specially designed anode used for continuous process of plating sheet steel. Specialized techniques were used in bonding the lead to the supporting copper frame.

★ ★ ★

Automatic Current Density Control

Description: A silicon rectifier with automatic current density control is said to provide precise voltage and current with varying tank loads—from one lightly loaded rack to many fully loaded racks.

The control is basically a device for taking a current signal from the rectifier output and using this signal to adjust output voltage and compensate for light loads.

The silicon cells of this rectifier have improved ability to withstand

Send for this folder on D'OILER DEGREASERS

Contains all types of degreasers: Laboratory, Two-Dip, Three-Dip, Vapor Spray, Barrel Type, Automatic, Semi-Automatic, Driers, Stills and Specials.
When the job needs a degreaser . . . there's a D'OILER for the job.

mechanical process co., inc.
392 VALLEY ST. • SOUTH ORANGE, N. J.

For more data circle 378 on Postpaid Card

overload and higher ambient temperatures (up to 113 deg. F.).

Manufacturer: General Electric Co., Rectifier Dept., Schenectady 5, N. Y.

For more data circle **26** on Reader Service Card

★ ★ ★

Inhibited Cleaner

Description: A rust and tarnish remover called Rustclean 154 is chemically inhibited so that it can be used safely on precision iron and steel parts, without changing dimensions. It is also useful in cleaning and removing tarnish from brass and for brightening aluminum.

In addition to not attacking the metal being cleaned, this material is said to leave a surface that inhibits corrosion and is an excellent base for paint. Salt spray and humidity tests, the manufacturer states, show test panels to have corrosion resistance increased by 15 to 25 per cent over untreated panels.

Operation: Solution is used either hot or cold. Heating the solution to 160-180 deg. F. speeds the process. For average use, one part of Rustclean is diluted with five or six parts water. Rinsing and drying completes the cleaning process.

Manufacturer: Octagon Process, Inc., 15 Bank St., Staten Island 1, New York.

For more data circle **27** on Reader Service Card

★ ★ ★

Fume Depressant

Description: Fumetrol, a fume de-

BARRETT
CENTRIFUGAL
GALVANIZER

Up to 60,000 lbs. of work in 8 hours

•

Uniform coating maintained within thousandths

•

Saves labor — eliminates hand-shaking small parts

BETTER FINISHING AT LOWER COST

See the proof! Submit samples of your product to us for laboratory finishing. We guarantee you'll get the same results with our galvanizer in your plant. Get complete information on Barrett Centrifugal Galvanizers, Enamelers, Washers, Dryers and Breakers — write for our

NEW FREE 16 PAGE TECHNICAL BOOKLET

- ✓ Typical Applications
- ✓ Design Features
- ✓ Performance Data
- ✓ Standard Units
- ✓ Special Units
- ✓ Special Applications

THE LEON J. BARRETT COMPANY
1449 Grafton Road
WORCESTER, MASSACHUSETTS, U.S.A.
For more data circle 379 on Postpaid Card

pressant for chromium plating solutions, reduces spray and dragout, lessens cost of solution replacement; lowers heating costs by reducing amount of air that must be removed through exhausts; keeps tank rods and electrical contacts cleaner; lessens hazards of contaminating nearby plating solutions by chromic acid mists; improves health conditions.

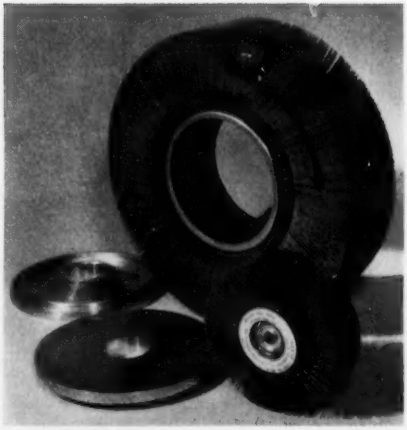
Manufacturer: Metal & Thermit Corp., Rahway, N. J.

For more data circle **28** on Reader Service Card

★ ★ ★

Coated Abrasive Flap Wheel

Description: A polishing wheel made of hundreds of coated abrasive cloth "flaps." Wheel's stiff construction gives it good resistance to pressure, which ups production rates and lengthens life, it is stated.



Coated Abrasive Flap Wheel: made stiffer

This wheel is available with silicon carbide or aluminum oxide grits in a variety of grit, hole, and wheel sizes.

Typical Applications: Polishing and finishing flat and contoured surfaces; smoothing grit lines and swirl marks after discing; works well on automatic polishing machines.

Manufacturer: Behr-Manning, a division of Norton Co., Troy, N. Y.

For more data circle **29** on Reader Service Card

★ ★ ★

Bright-Finish Aluminum Alloy

Description: A recently developed aluminum alloy sheet has a bright finish and improved stain resistance, is expected to be used extensively in the manufacture of cooking utensils, jewelry, optical frames, appliance trim.

If anodized, ordinary washing generally is adequate to clean and maintain the bright appearance of utensils fabricated from this alloy. Further data is available from the manufacturer.

Manufacturer: Aluminum Company

BRADY TAPEMATIC
automatic mask, label and tape dispenser
• Dispenses over 400 different precut pressure-sensitive masking tapes.
• Dispenses different sizes and shapes of printed or unprinted masks from the same roll.
• Dispenses all masks at the operator's speed of application.
Special requirements? Brady manufactures Quik-Masks in any size and shape you specify.
For details and a demonstration in your plant or office, write:
71
EST. 1914
W. H. BRADY CO.
746 W. Glendale Avenue
Milwaukee 9, Wisconsin

For more data circle 380 on Postpaid Card

of America, 743 Alcoa Bldg., Pittsburgh 19, Pa.

For more data circle 30 on Reader Service Card

★ ★ ★

Water-Soluble Cellulose Gums

Description: Three water-soluble cellulose gums recently added to the Dow Chemical Company's line of Methocel products have applications in the finishing field.

One of the products, Methocel 60HG, has a high degree of solubility and compatibility in organic formulating materials, is a good emulsifier and emulsion stabilizer. Its good solubility in organic materials makes it useful in paint removers, latex paints and auxiliary emulsifiers for alkyds.

Methocel 90GH was developed specifically for its high thermogelation characteristics, for use in industrial operations where high processing temperatures are encountered. It is used in the paint industry where paint products are stored at high temperatures.

A new booklet describing Dow's complete line of Methocel products, including the new HG products, is available from the manufacturer.

Manufacturer: Organic Chemicals Sales, The Dow Chemical Co., Midland, Mich.

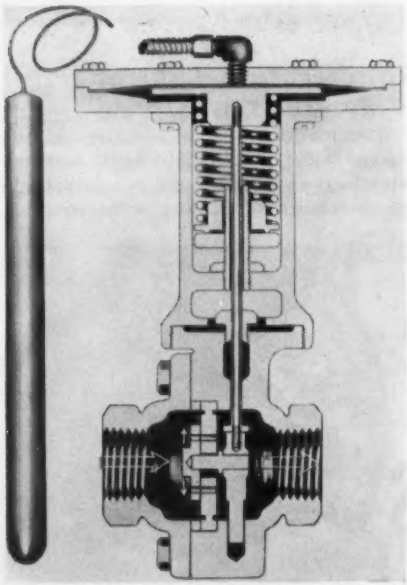
For more data circle 31 on Reader Service Card

★ ★ ★

Temperature-Control Valve for Corrosives

Description: A temperature-control valve with a plastic-coated sensing bulb is designed for use in controlling temperatures of plating solutions and

For more data circle 381 on Postpaid Card



Temperature-Control Valve: plastic coated sensing bulb resists corrosive plating solutions

other corrosive fluids. The coated bulb is not harmed by a wide variety of chemicals, yet retains good sensitivity to temperature, the manufacturer states. The entire thermal bulb and capillary tubing system is heavily coated with plastic. Suitable for temperatures up to 185 deg. F.

Capillary tubing is available in eight and 15-foot lengths as stock items, other lengths on special order. Temperature control valves available in ¼- to 2-inch sizes.

Bulletins SRB 16-58 and J-180, available from the manufacturer, give full information.

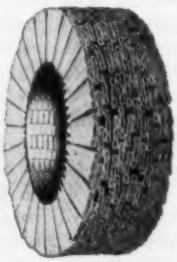
Manufacturer: Jordan Industrial Sales Div., OPW Corp., 6013 Wiehe Rd., Cincinnati 13, Ohio.

For more data circle **32** on Reader Service Card

★ ★ ★

Buff Treatment

Description: A process called the "Golden Treatment" is said to add firmer body and prevent fraying of cotton and sisal buffs without making them stiffer.



American Buff

Sisal cloth which has had this treatment is said to retain compound better. Both cotton and sisal buffs are said to give harder, faster cutting action and non-fraying, scratch-free, no-streak finishes when treated by this method.

The treatment is available on bias

RONA™

Synthetic Pearl Essence with the natural look!

PEARLESCENT FINISHES

BAKE OR AIR DRY FOR

Your Product Made of Metal, Plastic, Wood or Glass.
Write for sample. Specify application and choice of vehicle.

RONA PEARL AROUND THE WORLD

RONA LABORATORIES, INC.

East 21st and East 22nd Sts., Bayonne 4, N. J.

Plants: Maine • New Jersey • Canada

For more data circle 382 on Postpaid Card

cloth, unit cloth, pleated cloth, bias sisal, open bias sisal and unit sisal buffs in centerless or permanent center types.

Manufacturer: American Buff Co., 2414 S. LaSalle St., Chicago 16, Ill.
For more data circle **33** on Reader Service Card

★ ★ ★

Pastel-Colored Zinc Chromate Coatings

Description: A chromate coating called Luster-On 54 produces a clear chromate film that can be dyed to produce bright, corrosion resistant, pastel-colored decorative films on zinc plated parts.

How to Apply: Luster-On 54 is a powdered material. It is dissolved in one per cent nitric acid at a concentration of ¾ to one ounce per gallon. Solution temperature, 70-90 deg. F., immersion time, 20 to 40 seconds. Agitation is essential to produce uniform films.

After the parts have been thoroughly rinsed, they are immersed in a dye made by dissolving ½ ounce per gallon of Kemo Dye. The bath is operated at 130 deg. F. Agitation is required in this bath also, as is thorough rinsing.

After being rinsed, the work is dried. Where abrasion resistance is important the parts should be given a coat of clear lacquer to protect the surface. While the colors produced are classified as lightfast, a coating of lacquer that contains an ultraviolet absorption agent aids in color retention, the manufacturer states.

Manufacturer: The Chemical Corp., 75 Waltham Ave., Springfield 9, Mass.
For more data circle **34** on Reader Service Card

Drying time

CUT IN HALF!

with . . .

Model 20 New Holland KREIDER Centrifugal Dryer

Air-Dries . . . as it Spin-Dries. Gives smooth, moisture-free surfaces without scoring or marring . . . assures faster production . . . saves money wasted on "rejects."

SPECIFICATIONS:

1 hp motor—220, 440, 550 volts—2- or 3-phase. Spins 75-lb. loads at 825 rpm. Quiet V-belt drive. Arc-welded, steel-plate construction. Weight 490 lbs. Minimum floor space. Meets N.E.C. specs. Auxiliary electric or steam units available as optional equipment.

Send for illustrated 4-page folder. Address: Department PF-0758

NEW HOLLAND MACHINE COMPANY
NEW HOLLAND, PA.

For more data circle 383 on Postpaid Card

Spray-Mask Painting Machine

Description: A combination masking, painting, and mask-washing machine that requires no spray booth is suitable for painting small (up to 9 by 11 inches) parts in as many as three colors.

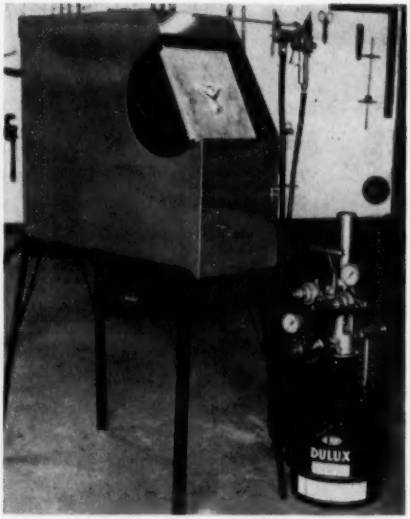
The spraying section of the machine holds six paint masks. It has a removable dry-type filter that allows the machine to be connected to plant exhaust systems with no danger of paint particles being deposited inside duct work.

Masks are automatically washed and dried. Cleaning solvent is held in a drawer that includes a built-in air-agitation system.

The machine fits on a bench top area 13 by 36 inches, or it may be equipped with legs. It can be furnished with all necessary accessory equipment, such as spray guns, pressure pots, paint pumps, regulators, exhaust fans, and so on.

Manufacturer: Dumatic Devices, Inc., 22833 Dequindre, Hazel Park, Michigan.

For more data circle **35** on Reader Service Card

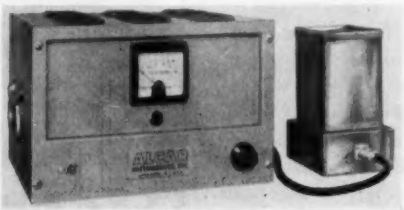


Dumatic Devices' Spray Decorating Machine

★ ★ ★

Ultrasonic Cleaner

Description: A small ultrasonic cleaning machine holds two quarts of



Alcar Instruments' Small Ultrasonic Cleaner

TRUE BRITE BRASS SOLUTION

A foolproof solution which has been in use for over 6 years in light and heavy production.

- Ready To Use—Just Add Water
- No Variance in Color
- Trouble-Free—Little Supervision Needed
- Low Cost—Additions only once a day

Available in a variety of colors. Will match your sample.

Write for technical bulletin and prices.

TRUE BRITE CHEMICAL PRODUCTS CO.
Box 31, Oakville, Conn.

For more data circle 384 on Postpaid Card

liquid, has an electronic generator that delivers 50 watts of power to crystal transducers mounted on the bottom of a stainless steel tank. Dimensions: six by six by six feet.

Typical Applications: Cleaning small parts, washing blind holes, cleaning printed circuits.

Manufacturer: Alcar Instruments, Inc., 17 Industrial Ave., Little Ferry, New Jersey.

For more data circle 36 on Reader Service Card

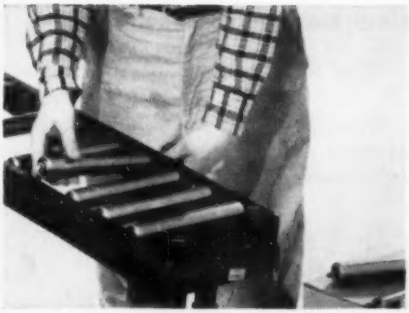
★ ★ ★

Roller Conveyor

Description: A lightweight roller conveyor designated No. 138 features spring-loaded rollers that are easy to insert into and remove from the conveyor frame.

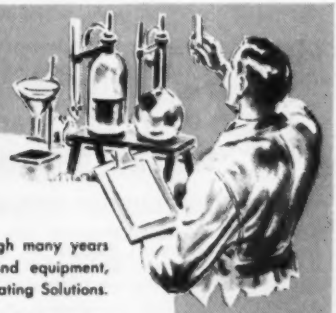
Conveyor sections of this type are available in 12- and 18-inch widths from stock, six to 30 inches on special order. Roller spacing is available in multiples of 1½ inches.

The rollers are 1⅜ inch in diameter, turn on ball bearings, and are rated at 80 pounds capacity. They are available for straight or curved con-



Buschman Roller Conveyor: easier insertion and removal of rollers, without tools

Rhodium
ELECTROPLATING SOLUTIONS



Technological knowledge acquired through many years of experience, plus special processes and equipment, assure the high quality of our Rhodium Plating Solutions.

Recommended for contact surfaces of switches, waveguide parts and other electrical applications, such as printed circuits...Can be applied in extremely heavy deposits, up to 100 milligrams per square inch.

Rhodium plating provides the advantages of whiteness, lustre and corrosion resistance of a precious metal.

Consult our staff about your plating problems.

Since 1901

SIGMUND COHN MFG. CO., INC.
121 SOUTH COLUMBUS AVENUE · MOUNT VERNON, NEW YORK

For more data circle 385 on Postpaid Card

veyor sections.

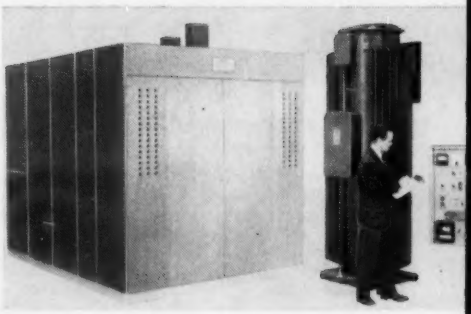
Manufacturer: E. W. Buschman Co., 4516 Clifton Ave., Cincinnati 32, Ohio.
For more data circle **37** on Reader Service Card

★ ★ ★

High-Amperage Reverse-Current Rectifier

Description: A rectifier that incorporates a recently developed combination of different semiconductor elements permits reversing current at the high amperages required for the reverse-current etch carried out prior to hard chromium plating.

An essential step in quality hard chromium plating, reverse current etch takes place in the plating bath and entails reversing the output polarity of the power source. This rectifier permits output polarity reversal on units up to 10,000 amperes by means of a panel-mounted switch or a push-button-operated solenoid-controlled air device.



Sel-Rex Current-Reversal Rectifier: 10,000 amps., 12 volts, for chromium plating

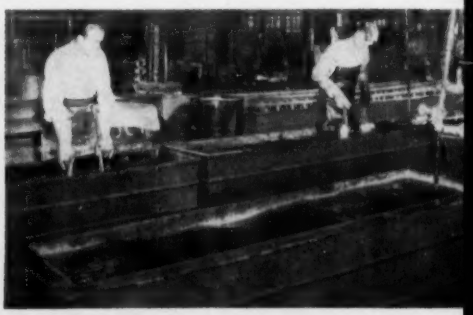
The recently introduced rectifiers are simple and economical to install, occupy little floor space.

Manufacturer: Sel-Rex Corp., Nutley, N. J.
For more data circle **38** on Reader Service Card

★ ★ ★

Plastic Plating Tank

Description: Fiberglas plating tanks are said to have excellent resistance to plating acids. Other advantages are that these tanks are non-conductive;



Darling Fiberglas Plastic Plating Tank

QUALITY EQUIPMENT
PRICED RIGHT AND READY FOR IMMEDIATE SHIPMENT

BUFFING AND POLISHING EQUIPMENT

100 Hammond—Divine—U. S. Electric—Holland — Standard Electric — L'Hommedieu single speed and variable speed buffing and polishing machines. 1 to 20 HP.

6 Rotary Machines: Hammond—Acme—Packermatic.

Complete buffing systems for above machines, including hoods, cyclones, dust boxes, pipes, motors and blowers; various sizes.

Semi-automatic machines: Buffalo—Hammond Acme—Divine—Production.

ALL EQUIPMENT IN STOCK
INSPECTION INVITED

all quoted subject to prior sale.

J. HOLLAND & SONS, INC.
485 KEAP ST., B'KLYN, N. Y., STagg 2-2022

For more data circle 386 on Postpaid Card

have adequate strength and good insulating properties. Available in many sizes and shapes

Manufacturer: L. A. Darling Co., Plastics Div., Coldwater, Mich.

For more data circle **39** on Reader Service Card

★ ★ ★

Electroless Nickel Plate for Magnesium, Other Metals

Description: An electroless process for depositing nickel on magnesium and other metals (steel, aluminum, copper) is expected to be useful in plating printing cylinders, electronics equipment, insides of tubes, and in providing a suitable base for plating other metals.

Characteristics: Requires no electric current; can be built up to any thickness; fills imperfections; covers all surfaces uniformly, including insides of drilled holes and other recesses; because it contains nine per cent phosphorus, it becomes an age-hardening alloy with excellent hardness and abrasion resistance; may be readily overplated with tin, chromium, zinc, silver, gold and cadmium; has good soldering properties.

Process Operation: 1) Clean the metal; 2) rinse; 3) etch; 4) rinse; 5) defilm; 6) rinse; 7) immerse in the electroless nickel plating solution for prescribed period of time; 8) rinse. In plating magnesium, zinc immersion and copper strike are necessary only if maximum corrosion protection is required of a product.

Manufacturer: Dow Chemical Co., Midland, Mich.

For more data circle **40** on Reader Service Card

IT'S EASY TO
STRIP
OFF PAINT
and Solve Your Stripping Problems with—

EPOXYSTRIP

PAINT STRIPPER—Saves Time and Money!

A new more powerful paint stripper that outstrips all others! No organic finishes have yet resisted this amazing paint stripper. It was especially formulated to remove epoxies . . . with the same ease that it removes baked enamels, lacquers, etc. No stripping scum—clean rinsing!

SEND FOR FREE BROCHURE

- EPOXYSTRIP WILL NOT HARM SOFT METALS
- ECONOMICAL—MORE JOBS PER GALLON AT LOWER COST
- NO SCRUBBING OR MANUAL ASSISTANCE
- RECOMMENDED BY LEADING FINISH MANUFACTURERS

JOBBERS: Beck EPOXYSTRIP sells on demonstration. Try it and see for yourself.

BECK EQUIPMENT COMPANY
3350 WEST 137th STREET — CLEVELAND II, OHIO

For more data circle 387 on Postpaid Card

Multiple-Head Spray Nozzle

Description: A multiple-head pneumatic atomizing nozzle is useful in operations where simultaneous spraying in two or more directions is necessary. It is available with two, three or four swivel heads in stainless steel or brass. Each head is adjustable through a full 360 degrees.

Multiple-Head Spray Nozzle

Typical Application: Spray-lubricating die faces, where both male and female dies are sprayed simultaneously during the "open" part of the cycle.

Detailed Data: Multiple - Swivel Pneumatic Nozzle Data Sheet gives full information. Available from the manufacturer.

INCREASE PRODUCTION! CUT COSTS!
Your paint is factory fresh ready for use when mixed in a
MIRACLE PAINT MIXER
5 GAL. MODEL
¼ Pt. to 55 Gal. Mixers Available
Write to:
MIRACLE PAINT REJUVENATOR CO.
500 NORTH ROBERT STREET ST. PAUL 1, MINNESOTA
For more data circle 388 on Postpaid Card

Manufacturer: Spraying Systems Co., 3229 Randolph St., Bellwood, Ill.

For more data circle **41** on Reader Service Card

★ ★ ★

Chromate Coatings

Description: Two chromate coatings, Duracoat 27 and 27L, are said to produce clear bright coatings on cadmium plate, with no iridescence. Leaching is not required. Solutions are composed of 3½ ounces of Duracoat 27 per gallon of water. Supplied as powder or liquid.

Manufacturer: Heatbath Corporation, Springfield 1, Mass.

For more data circle **42** on Reader Service Card

★ ★ ★

Parts Collector

Description: A scoop with a long handle and cover that can be operated from above the solution is useful in recovering non-magnetic parts that have dropped into a plating tank and cannot be recovered with a tank magnet.

Belke Super Scooper

The scoop, called the "Super Scooper" is moved along the bottom of the tank with cover open to gather the parts. Closing the cover pushes the parts that have been collected into the scoop.

The scoop makes it possible to collect parts that fall off plating racks before they can contaminate plating solutions or before costly parts are ruined.

Manufacturer: Belke Manufacturing Co., 947 N. Cicero Ave., Chicago 51, Ill.

For more data circle **43** on Reader Service Card

Moisture Extractor

Description: A simply constructed moisture extractor, the DryAir 400, removes oil and moisture from compressed air used in spray painting and for operating air-powered tools. It is useful in processing compressed air used for all types of intermittently operated air-powered equipment. Will fit a varie-

Spee-Flo's DryAir 400 Moisture Separator

ty of line sizes: ¼-inch, 18-c.f.m. maximum to ¾-inch, 120-c.f.m. maximum.

Literature describing this unit is available from the manufacturer.

Manufacturer: Spee-Flo Co., 6614 Harrisburg, Houston, Texas.

For more data circle **44** on Reader Service Card

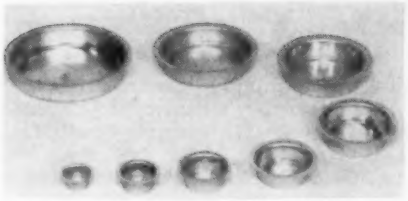
★ ★ ★

Thread Protectors, Hole Plugs

Description: Recently introduced soft aluminum plugs are useful in protecting holes and internal threaded surfaces during transit and in processing. The soft metal used guards against thread damage during plug application or removal.

The plug-protectors are available in pipe-size increments from ⅛ inch to three inches.

Applications: Masking surfaces during plating, anodizing, painting and other finishing operations; protecting ground, polished, plated or painted in-



Soft Aluminum Hole Plugs: protect threads

ternal surfaces during transit. Samples available from the manufacturer.

Manufacturer: Protector Products, Inc., 2156 W. 15th St., Cleveland 13, Ohio.

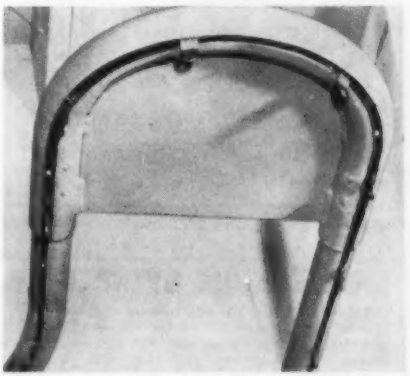
For more data circle **45** on Reader Service Card

★ ★ ★

Curved Conveyor Track

Description: Recently introduced six-, nine-, and 12-inch-radius horizontal curves for conveyor systems are helpful in installing systems where it is desirable to return a conveyor line on a short radius.

Applications: For use in ovens, drying areas, storage lines, wherever it is desirable to conserve space, reduce size of processing equipment, or make a



A 12-inch curve for conveyor track allows lines to parallel one another at close intervals

turn in a minimum space.

Manufacturer: Chainveyor Corporation, 5618 E. Washington Blvd., Los Angeles, Calif.

For more data circle **46** on Reader Service Card

★ ★ ★

Reverse-Current Cleaner

Description: An electrocleaning compound said to combine high conductivity and surface activity is expected to be especially useful in removing heavy smut from steel. It also removes fingerprints, light rust and oxides resulting from seam or spot welding.

How to Use: Dissolve eight to 16 ounces of Oakite Composition No. 190 per gallon of water, heat to 180-200 deg. F., operate with reverse current (40-100 a.s.f.). May be used with or without a precleaner. Rinses easily in hot or cold water.

Manufacturer: Oakite Products, Inc., 20 Rector St., New York 6, N. Y.

For more data circle **47** on Reader Service Card

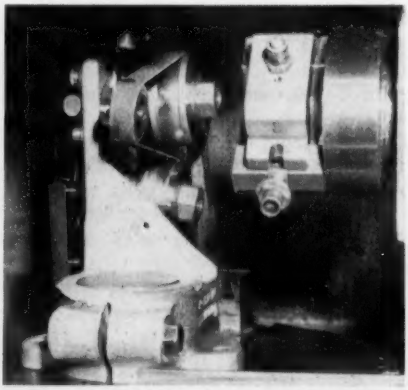
Contact Wheel

Manufacturer: Disogrin Industries, Inc., New York International Airport, Jamaica 30, N. Y.

Equipment: The Disogrin Contact Wheel, said to have excellent resistance to wearing.

Disogrin Contact Wheel

Description: A contact wheel made by using a material called Disogrin, a urethane elastomer whose properties make it well suited to this application. Will withstand grinding and polishing that impose severe



Disogrin Contact Wheel being used with emery grinding belt in place: resists wear

Lanly

FINISHING OVENS

THE LANLY CO.

2800 EUCLID AVE. • CLEVELAND 15, O.

WRITE FOR INFORMATION & LITERATURE

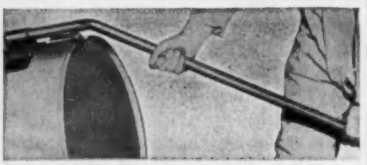
For more data circle 389 on Postpaid Card

MORSE DRUM UPENDER No. 32

Takes the strain and effort out of upending heavy drums. Has 40" handle offset 35° for top efficiency. Hefty 1¼" hook provides clearance for largest chime. 2½" x 8" toe plate spreads lifting pressure over large area to prevent drum damage. Order Several Today!

MORSE MFG. CO., INC. **$6.90** FOB

762 West Manlius St., E. Syracuse, N.Y.



For more data circle 390 on Postpaid Card

strains on the wheel. Will keep shape and maintain tolerances for longer periods of time, the manufacturer states. Is used with abrasive belts.

For more data circle **48** on Reader Service Card

★ ★ ★

Coated Abrasive Polishing Head

Description: A polishing head recently introduced for producing scratch finishes on contoured and flat surfaces carries its own supply of coated abrasive to replace worn material.

The brush-backed head uses either cloth or paper backed abrasive, feeds it from rolls, which are automatically or manually advanced.

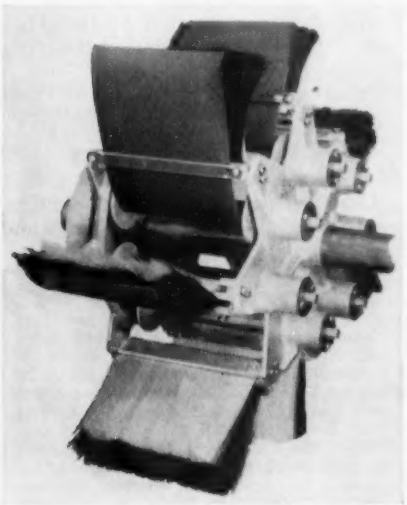
Called the Smooth-O-Matic Head, the unit may be used on portable tools or in permanent mountings.

Heads available for abrasive widths of two to 50 inches. Recommended motor speed: 750 r.p.m.

Applications: For producing satin to coarse finishes; particularly adaptable to polishing extruded aluminum shapes prior to anodizing for automated machines used in polishing contoured and flat surfaces.

Manufacturer: Abrasive Machinery Corp., Dept. H-312, 444 S. Pennsylvania St., Indianapolis 25, Indiana.

For more data circle **49** on Reader Service Card

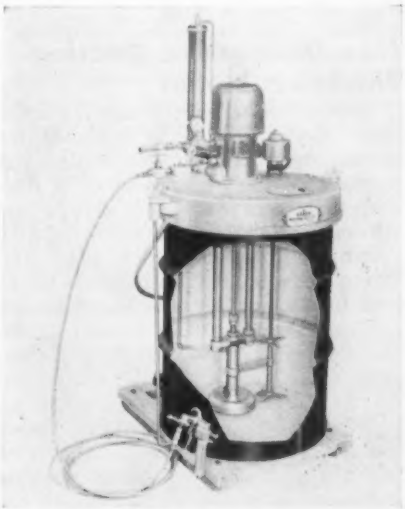


Smooth-O-Matic Head: replaces worn abrasive

★ ★ ★

High-Pressure-Atomization Painting Process

Description: Graco "Hydra-Spray" painting process utilizes a combination of high fluid pressure and a small fluid nozzle to create fine material break-up without atomizing air, heat or excessive use of solvents to reduce paint to spraying viscosity.



Graco's Hydra-Spray painting equipment: high pressure, small nozzle, no atomizing air

This method of spraying is said to produce a minimum of overspray, bounce-back and solvent fumes.

An air-powered pump that produces fluid pressure 20 times that of in-

bound air pressure forces the paint through the small nozzle opening, breaking material into a fine spray. This pump exerts no pressure in the container. It operates only while the spray gun is in use.

Bulletin 303-131 contains a complete description and detailed information about this equipment.

Manufacturer: Gray Company, Inc., 1018 Sibley St., N.E., Minneapolis 13, Minnesota.

For more data circle **50** on Reader Service Card

★ ★ ★

Non-Destructive Coating Thickness Tester

Description: The Glennite Laminagage Model FLW-1 is designed for measuring thickness of many films and metallic coatings on a variety of base materials. Will also detect surface and sub-surface cracks in smooth and rough coatings, flat stock, plate and tubing. Can be used to measure thickness of coatings on odd-shaped pieces.

The instrument will measure coatings varying in thickness from 0.00005 inch to 0.007 inch. Accuracy within 10 per cent.

Typical Applications: Crack detection in basic materials, such as cast iron, brass, carbon steel; determining thickness of paints and porcelain enamel coatings; measuring thickness of tin-plate; thickness of anodized coatings; thickness of non-conducting coatings on conducting base materials.

Glennite Model FLW-1 Thickness Checker

Manufacturer: Gulton Industries, Inc., 212 Durham Ave., Metuchen, New Jersey.

For more data circle **51** on Reader Service Card

★ ★ ★

Metal "Fabric"

Description: A material called "Croweave" is made by embossing and

METALS GLO WITH "TI-CO"

- **COB GRITS (Blasting)**
- **COB FLOUR (Foundry)**
- **COB MEAL (Tumbling)**

Use In Blasting, Tumbling Machine To Remove Burrs, Plastic Flash; Molding Or Core Sand. Will Replace Steel Shot At Much Lower Cost.

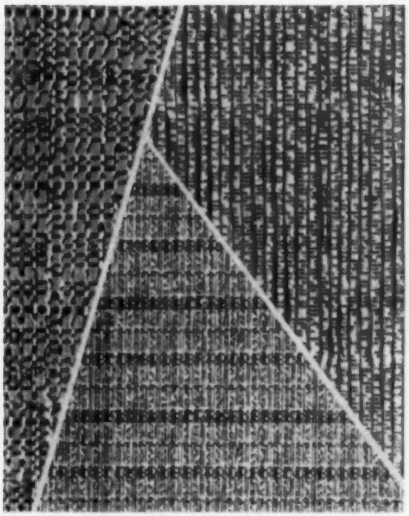
TI-CO INDUSTRIES, INC.
P. O. Box 185, Tipton, Indiana
Federal 2-5942, Elwood, Indiana

For more data circle 391 on Postpaid Card

YOU PROFIT

"Your excellent course has been more help to me than any other source of information," writes plating technician George Day of Omaha, Nebraska. You too will find more practical help in solving your every day plating problems in this unique home study material than you will in a library full of technical books. Free details. **Dr. Joseph B. Kushner, Electroplating School, 115 Broad St., Stroudsburg 10P, Pa.**

For more data circle 392 on Postpaid Card



Some of the patterns available in Croweave embossed, prefinished metal

coloring various metals to give the appearance of a textured cloth or fabric. This pre-finished metal is available in various textures and colors, can be formed and machined.

Applications: Radio and TV speaker grilles, automobile and appliance trim, other trim and decorative parts.

Manufacturer: Croname, Inc., Cro-Roto Div., Dept. PF, 3701 N. Ravenswood Ave., Chicago 13, Ill.

For more data circle **52** on Reader Service Card

★ ★ ★

Cleaner-Phosphatizer

Description: Turcoat 4185 cleans and simultaneously deposits a light phosphate coating on iron, steel or zinc, in a three-stage operation.

This material deposits up to 70 milligrams of phosphate coating per square foot (on steel). The coating helps to assure paint adhesion and prevents rapid rerusting of steel prior to painting.

Applications: Cabinets, lockers, heaters, structural parts, furniture, automotive trim, and so on.

Technical literature on this product is available from the manufacturer.

Manufacturer: Turco Products, Inc., 6135 S. Central Ave., Los Angeles 1, California.

For more data circle **53** on Reader Service Card

★ ★ ★

Multiple-Barrel Finishing Machine

Description: Model DLX Finishing Unit has two or three compartments and a built-in reciprocating screen separator.

Construction Features: Variable-speed drive—12 to 36 r.p.m. Drainage outlet for connection to existing drains. Direct chain-and-sprocket drive. Remote-controlled magnetic starter. Vinyl-lined barrels. Optional timing accessories. Machine driven by ½-h.p. 220- or 440-volt motor. Overall size: 40 by 42 by 49 inches.

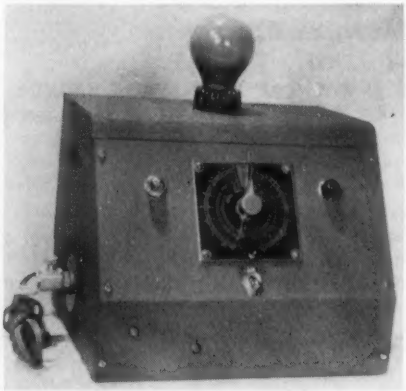
Manufacturer: Rampe Manufacturing Co., 14915 Woodworth Ave., Cleveland 10, Ohio.

For more data circle **54** on Reader Service Card

Rampe's Model DLX Multiple-Barrel Finisher

Plating Timer

Description: Recently introduced models of the Cyclomatic Plating Timer automatically cut off the plating



Cyclomatic Plating Timer: automatic reset

current at the end of a preset time and then automatically reset for a new plating cycle, in addition to performing the functions of previous models.

Models "B" and "C" automatically begin timing the plating cycle when work is put into the plating tank; they cut off the current at the end of a preset time and at the same time signal with a light and a buzzer; at the end of the power-off time period, plating current cuts in again, and the unit automatically times the next plating cycle. A push button is provided for cutting short the power-off time when desired.

Manufacturer: Cadillac Rectifier Div., R.E.P. Electric Products Co., 539 Webster Ave., New Rochelle, N. Y.

For more data circle **55** on Reader Service Card

★ ★ ★

Epoxy Stripper

Description: A cold solvent stripper designated Enamel Stripper S-16 will remove many of the newer epoxy finishes—coatings that are often difficult to remove.

Operation: Parts are immersed in the stripper at room temperature. When the epoxy enamel has had time to wrinkle up and become detached from the metal the part is removed from the stripping tank and flushed off with a cold water rinse. The recently introduced stripper does not attack most base metals during the short immersion times usually required, it is stated.

The solution can be replenished by adding fresh material, does not deteriorate due to buildup of dissolved enamel, since the coating is not dissolved by the stripper. Literature on this material is available from the manufacturer.

Manufacturer: Enthone, Inc., 442 Elm St., New Haven, Conn.

For more data circle **56** on Reader Service Card

"GRIPALLOY"

. . . Attractive satin sheen ETCHING PRIMER in black and colors . . . Often used as finish coat . . . Air dries in minutes . . .
. . . Amazing tight adhesion to 25 different metals as reported by a large electrical manufacturer.
. . . Excellent resistance to Salt Spray, Gasoline, and Solvents . . .

TENAX, Newark, N. J.
Lacquers—Enamels
Synthetics—Vinyls

For more data circle 393 on Postpaid Card

Telephone collect for free brochure on

STRIPPING COPPER

with

McKeon's "Liquid Sulphur"

Economical, fast, non-electrolytic.

Sulphur Products Co., Inc.
McKeon Bldg., 621 W. Pittsburgh St., Greensburg, Pa.

For more data circle 394 on Postpaid Card

Automatic Air Line Filter

Description: A separator for removing moisture and dirt from compressed air lines operates on pressures from 10 to 250 p.s.i., continuous or intermittent flow, with small pressure drop and no flutter.

Aqua-Jet Separator

The float in this unit merely triggers the moisture discharge rather than actuating the port; therefore action of the unit is positive.

A built-in impregnated felt cartridge protects operating parts against rust and grit, and because the air itself blows out contaminants, particles cannot settle on the soft seat when the drain closes.

These units, known as "Aqua-Jet" separators, are available for ¼-inch to eight-inch pipe lines.

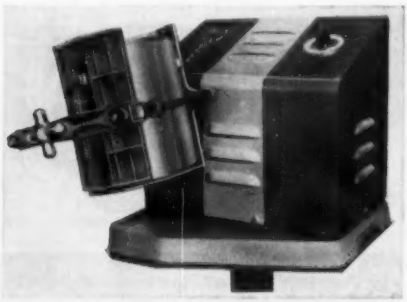
Manufacturer: Wilkerson Corp., 1654 Girard Ave., Englewood, Colorado.

For more data circle **57** on Reader Service Card

★ ★ ★

Small Paint Shaker

Description: A small paint shaker thoroughly agitates one-pint to one-gallon-size cans of paint to mix the contents without opening the can.



Miracle Model MDC-1 Paint Shaker

The electrically operated device operates quietly, is equipped with a timer that automatically turns off the machine at the end of the desired time.

Manufacturer: Miracle Paint Rejuvenator Co., 500 N. Robert St., St. Paul 1, Minn.

For more data circle **58** on Reader Service Card

★ ★ ★

Hollow Lead Anode

Description: A hollow lead anode for chromium plating is lighter in weight and lower in cost, is said to perform equally as well as solid anodes.

Hollow Lead Anode

Key to the design is the method used to attach the hook to the hollow anode. The anode is flattened and the hook homogeneously burned to the anode. The bond formed will last the life of the anode, it is stated.

Burning the hook directly to the anode makes it possible to provide a vent hole well above the solution level to vent gases and fumes.

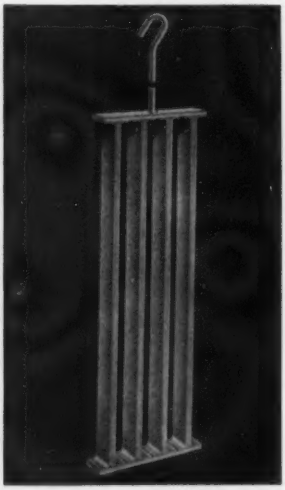
Sizes Available: 1½ and 2 inches outside diameter, wall thicknesses ¼ and ⅜ inch respectively. Length as specified. Any of six hook styles. Hooks furnished plain or with plastisol coating.

Manufacturer: Republic Lead Equipment Co., 7930 Jones Rd., Cleveland, Ohio.

For more data circle **59** on Reader Service Card

Magnetic Parts Carrier

Manufacturer: Magnetool Division, Multifinish Manufacturing Co., Detroit, Mich.



Magnetic Conveyor Parts Carrier

Equipment: A magnetic unit for carrying parts on an overhead conveyor.

Description: Ferrous metal parts that are to be carried on an overhead conveyor are placed on the magnetic tines of this unit. They are securely held in place while the conveyor takes them through various processes.

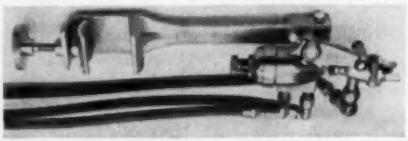
Uses: Eliminates hooks, hangers and special carriers for conveying ferrous parts through such processes as cleaning, rinsing, painting, drying, and so on. Complete information available from the manufacturer.

For more data circle **60** on Reader Service Card

Electrostatic Spray Gun Bracket

Description: An aluminum mounting bracket for electrostatic and automatic spray guns is designed to prevent guns from accidentally falling, twisting or turning out of proper position. Once locked in position with this bracket, guns stay put.

Made of cast aluminum, the bracket



Spray Gun Bracket: holds electrostatic spray guns and automatic spray guns in position, prevents accidental movement from position

clamps to a two-inch-diameter tube, is tightened by hand with a knurled knob.

The gun can be pivoted in a vertical plane and can be angled upward or downward. When forward movement is desired, the vertical support tube is mounted on a movable overhead carriage. This carriage can be moved backward or forward, locked in any desired location.

Manufacturer: H. G. Fischer & Co., Electrostatic Paint Spray Systems Div., 9451 W. Belmont, Franklin Park, Illinois.

For more data circle **453** on Reader Service Card

Write for new 1958 Catalog of Paint Testing Instruments and Equipment.

GARDNER LABORATORY, INC.

P. O. BOX 5728-P
BETHESDA 14, MARYLAND

For more data circle 395 on Postpaid Card

IT WILL PAY YOU

For phosphating, degreasing, plating, cleaning, drying, etc., it will pay you—and pay you well—to investigate and USE the modern Dean Thermo-Panel Coil which TAKES THE PLACE of old-style pipe coils. Have you a problem? Want data? Prices?

DEAN THERMO-PANEL COIL DIVISION
DEAN PRODUCTS, INC. 622 Franklin Ave
BROOKLYN 38, N. Y. Tel. STerling 9-5400

For more data circle 396 on Postpaid Card

NEW BOOKS

Structural Chemistry and Metallugy of Copper. Lecture, by D. K. Crampton, presented at the 1956 Annual Meeting of the American Society for Testing Materials. Copies may be obtained from the American Society for Testing Materials, 1916 Race St., Philadelphia 3, Pa. Price, $1.50.

Dr. Crampton discusses some of the new work on recrystallization and grain growth of copper alloys. Time intervals much shorter than previously used were investigated. He also discusses the structural chemistry of copper and copper alloys, particularly in relaxation of grains and grain boundaries both in pure copper and in some copper alloys; new investigations of the fundamentals of corrosion and corrosion resistance of copper, and some of the factors affecting incidence of corrosion pits.

★ ★ ★

Porcelain Enameling Operations. A new edition of this 113-page book, by E. E. Bryant, technical director of Ferro Corporation's Frit Division is available from Frit Division, Ferro Corporation, 4150 East 56 St., Cleveland 5, Ohio.

First published in October 1953, "Porcelain Enameling Operations" has become the standard industry text for the commercial application of porcelain enamel. To date 5,000 copies of the first edition have been distributed to enamelers, colleges and libraries all over the world.

★ ★ ★

The Measurement of Thickness. By George Keinath, National Bureau of Standards Circular 585. 79 pages. 50 cents. Order from the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C.

This publication surveys the available information on the various methods and problems of measuring thickness. The methods are treated in seven groups, according to physical operating principles: mechanical, chemical, electrical, magnetic, optical, X-ray, and radioactive radiation.

Although the methods and instruments are not described in detail, a discussion of ranges, accuracy, advantages and limitations is included.

★ ★ ★

Barrel Finishing Data Catalog. Revised edition of company's catalog-data book on barrel finishing equipment describes and illustrates Poliaction barrel finishing machines

equipped with either "Electratilt" electrical tilting controls or "Hydratilt" manual-hydraulic tilting controls.

Also describes large and small oblique and horizontal barrel processing machines. Available from The Baird Machine Co., Dept. PF, Stratford 9, Conn.

★ ★ ★

Conveyor Catalog. An eight-page catalog illustrates and describes overhead trolley conveyor systems. Can be obtained by writing on company letterhead to Alvey-Ferguson Co., 626 Disney St., Cincinnati 9, Ohio.

In addition to blueprints, specifications and descriptions of components such as wheels, trolleys, chain, take-ups, drive units, roller turns, traction wheels, and trolley and chain attachments, the new brochure contains several photographs of A-F Engineered Overhead Trolley Conveying Systems in various industries.

Included in the catalog is an informative page containing instructions on making the chain pull calculations necessary to select the proper drive unit.

The new brochure also contains a complete description and specifications of A-F "Trol-e-veyor" — a new type of light- and medium-duty overhead trolley conveyor.

★ ★ ★

Rhodium Electroplating Process. A booklet that tells where, when and how to use rhodium electroplates for electrical, electronic and other applications. The booklet gives a detailed analysis of advantages rhodium will provide in specific applications.

Essentially a technical exposition of rhodium's metallurgical properties, the literature features graphs and charts showing rates of deposition under various operating conditions. Some of the detailed information provided: bath preparation and control; determination of rhodium in plating solutions; equipment required; current densities, and general operating instructions. A workable formula for computing the cost of rhodium electroplating is also included.

Available from Sel-Rex Corporation, Nutley 10, N. J. Request on company letterhead.

★ ★ ★

Report on High-Temperature Protective Coatings for Magnesium. By C. R. Fitzgibbon, E. H. Miller

carl mayer
DRYING OVENS

- Guaranteed Uniform Temperature.
- Gas Fired, Recirculating Air Heaters.
- All Sizes, All Types.
- Long, Trouble-free Service

THE CARL MAYER CORP.
20800 CENTER RIDGE RD., CLEVELAND 16, OHIO

For more data circle 397 on Postpaid Card

SOLVENTS and THINNERS RECOVERED

from wash thinners, spoiled lacquers, degreasing machine sludge, etc.
Solvents recovered by the Lofgren Process.
Each customer's shipment, whether one drum or a carload, receives proper and separate treatment. *Write to:*

Solvents Recovery Service, Inc.
1025 Broad St. Newark 2, New Jersey
Hammond Solvents Recovery Service
241 Brunswick Rd. Hammond, Ind.

For more data circle 398 on Postpaid Card

and M. A. Glaser, Midland Industrial Finishes Co., for Wright Air Development Center, U. S. Air Force. 112 pages. Available from OTS, U. S. Dept. of Commerce, Washington 25, D. C. Order PB 131073. Price, $3.00.

Three air-drying coating systems, one "preferred" and two alternates, were developed for effective protection of magnesium alloys against high humidity-high temperature (to 500 deg. F.) conditions encountered by high-speed aircraft.

The preferred system is based on an epoxy-polamide vehicle. It consists of a calcium chromate pigmented primer containing 35 per cent pigment and an aluminized topcoat. Major drawbacks of the preferred system are its lack of color retention at high temperatures and that it would have to be supplied as a multi-package material.

The two alternate systems, while inferior in humidity and temperature resistance, are one-package materials with better color retention than the preferred system. The vehicles on which the alternates are based are a styrenated acrylonitrile modified alkyd-silicone copolymer resin, and a mixture of an epoxy ester and a silicone resin.

★ ★ ★

How to Strip Paint. Four methods commonly used to remove paint are described in detail in Booklet F7893, available from Oakite Products, Inc., 20 Rector St., New York 6, New York.

The booklet first describes twelve different paint stripping compounds —alkaline, solvent, and solvent-acid —each designed to remove different types of paint.

It then discusses the Oakite Hot-Flow-On method of stripping, consisting of flowing stripping solution through a perforated pipe, rake, or shower-head.

The second method discussed is tank immersion, in which the part to be stripped is soaked in a tank of stripping solution.

Third is the steam-gun method, in which steam is combined with the stripper and flowed on the surface through a steam gun.

Brushing is the fourth method: stripper is brushed on, allowed to soak and rinsed off.

The booklet also discusses treatment of metals before repainting and prevention of rust on stripped surfaces in storage.

★ ★ ★

Pitting in Ferrous Systems: An Annotated Bibliography. By M. Benton, Naval Research Laboratory. Order PB 131006, from Office of Technical Services, U. S. Department of Commerce, Washington 25, D.C. Price, $3.25.

References are given to 483 items of published information on pit formation. The data cover pitting in metals of all types, its causes, and means of preventing it. Included are references to information on stress and cavitation pitting on materials above and below ground, on ships, in buildings, in water and the atmosphere, and on the surface and inside of boilers and pipes. The period covered is 1866 to March 1957. Most of the references are briefly described.

News of the Finishing Industry

✓company news
✓new positions
✓new plants
✓meetings

commercial degreasing machines, and will be used to test performance of "Triclene" degreasing solvents in metal cleaning.

Electroplating, descaling and heat-treating equipment aid in evaluating the company's plating products, including a high-speed copper plating process announced recently.

The Pigments laboratory has facilities for developing tailor-made pigments for the paint, plastics, rubber, paper, ink and other industries.

The building includes an indoor test room with a 50-foot glass wall that provides uniform northern exposure for test panels. Outdoor test panels are prepared in another area and taken to a nearby test farm for evaluation.

NEW PLANTS

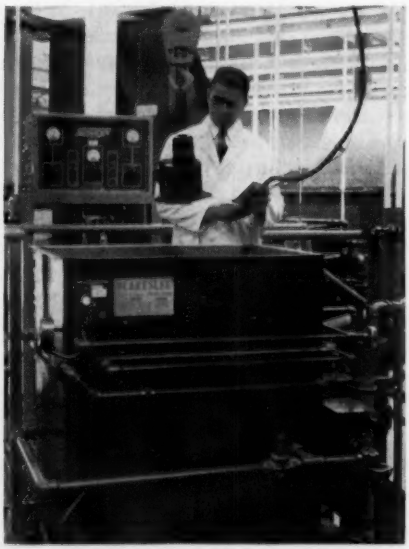
Du Pont Electrochemicals and Pigments Departments Open New Service Lab

The Electrochemicals and Pigments departments of the Du Pont Company will share 81,000 square feet of floor space in a new five-million-dollar laboratory recently opened by the company in Wilmington, Delaware.

A staff of 130 chemists, metallurgists, chemical engineers and other skilled technicians will provide customer service and evaluate new and improved products for these departments. They will work in laboratories specially equipped to serve the paint, electroplating, metals, textile, plastics, paper, ink and allied fields.

The electrochemicals wing contains equipment for duplicating customer operations in the sodium, peroxygen, chlorine, vinyl and related products fields.

This section contains a 75-foot-long degreaser, the only one of its kind. It is designed to duplicate features of



This Blakeslee ultrasonic degreaser is one of many machines that help to solve customer problems and evaluate new products for Du Pont Electrochemicals and Pigments groups in new laboratory recently opened in Wilmington, Delaware. (Photograph courtesy E. I. du Pont de Nemours & Co. (Inc.).

Advance Process Supply Opens New Chicago Facilities

Advance Process Supply Co., Chicago, has expanded its operation, adding another building in Chicago. The new building will feature a screen shop display, housing printing and drying equipment. Screen process users will be invited to make trial runs.

The new location, at 2319 W. Huron St., will also house company offices, screen and art service and stock department. The company's Kinzie St. location will be devoted to manufacturing.

Brookfield Expands Lab

A 3,000-square-foot addition to the Brookfield Engineering laboratory in Stoughton, Massachusetts, will expand the company's research, development and engineering facilities. Recently completed, the new facility has been designed primarily for the development of new automatic viscosity recording and control systems.

Glidden Opens New Detroit Sales-Service Lab

The Glidden Company has opened a new sales-service laboratory at 7508 Woodward Ave., Detroit. The new lab is equipped to provide testing and evaluation of industrial and automotive finishes.

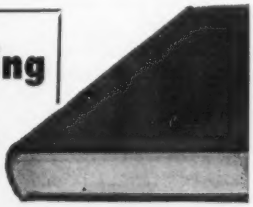
Glidden's Detroit staff was simultaneously increased by the addition of R. V. Hudson as technical manager of automotive finishes and Paul Colbrooke as special automotive representative and color coordinator. Both men have had extensive experience in automotive finishing mtaerials.

COMPANIES

Roto-Finish Executives Visit Distributors

Two Roto-Finish executives, Gunther Balz, vice president and W. J.

Bringing you Modern developments in plating processes and methods



HERE are the basic theories and principles of electroplating—the practical methods and processes that are of invaluable use to everyone concerned with electroplating and electrotyping. The most efficient methods of making electrodeposits on more than 40 different metals, alloys, and plastics are summarized completely in this thoroughly revised and enlarged book.

Principles of ELECTROPLATING & ELECTROFORMING

By William Blum, Chemist, U. S. Bureau of Standards and George B. Hogaboom, Consultant

Revised 3rd Edition
455 pages, 6 x 9
24 tables, illus.
$8.00

Completely revised to make it a more practical working guide, this book summarizes and digests the best of modern practice in the field. It covers qualitative, quantitative analyses of solutions; pickling, dipping; electropolishing; electroforming, electrotyping; producing phonograph record matrices, and manufacturing tubes, etc. Metals are dealt with in the same orders as in the periodic system of elements.

(Please send check with order)

PRODUCTS FINISHING, 431 Main Street, Cincinnati 2, Ohio

Walther, sales manager, recently completed a 14-day tour of 15 large metropolitan sales areas in the eastern United States and Ontario.

Purpose of the trip was to convey technical information to Roto-Finish distributors and describe recent developments in barrel finishing equipment, materials and methods.

Allied Research Moves Central Sales Office

Allied Research Products, Inc., has moved its central district sales office to 400 Midland Ave., Detroit. This office had been at 700 E. Atwater St.

Molten Salt Bath Slashes Pickling Time in New Inco Plant

Immersion in a molten salt bath speeds subsequent pickling operations in a seven-stage pickling line recently engineered and fabricated by Kolene Corporation, Detroit, Michigan, for the new Huntington, West Virginia, works of International Nickel Co., Inc.

The hot (900 deg. F.) No. 1 Tank is used for descaling, degreasing and degassing stainless steel tubes, rods, wire and strip. The molten Kolene No. 1 oxidizing salt changes the chemical structure of the nickel-chromium scale to a form that can be removed by the six subsequent acid pickles in a fraction of the time normally required.

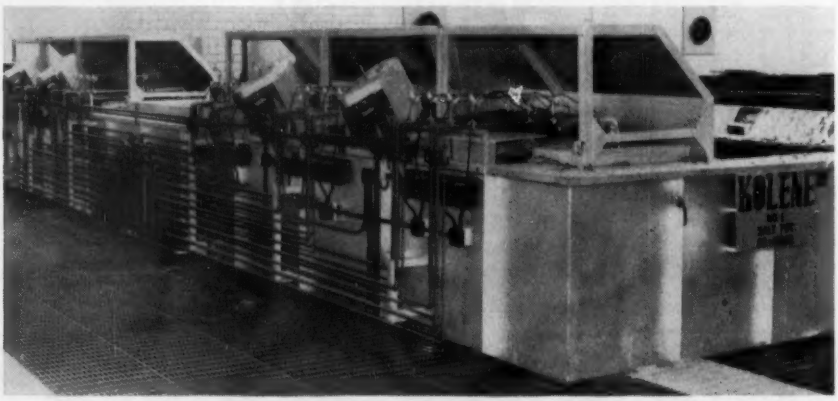
The molten salt bath tank is 42 by five by six feet deep, has two sludge pans (three by four feet each) outside the work area to collect the carbonates and other insolubles that settle during operation of the 220,000-pound molten salt bath.

Twenty-four gas-fired immersion tubes heat the bath and four agitators distribute the heat uniformly.

Enthone Licenses Italian Manufacturer-Distributor

Enthone, Inc., New Haven, Connecticut, a subsidiary of American Smelting and Refining Company, has licensed Compagnia Italiana Galvanotecnica, Milano, to manufacture, distribute and service Enthone metal finishing chemicals in Italy.

Enthone products are now manufactured in five European countries and distributed throughout western Europe.



Tank on the right, one of the largest molten-salt-bath descaling tanks in the world, forms the first stage of a seven-stage pickling line recently installed in the new Huntington, West Virginia plant of International Nickel Co., Inc. (Photo courtesy Kolene Corporation).

Central Solvents Establishes Scholarships at IIT

Two new scholarships have been established at Illinois Institute of Technology, Chicago, by the Central Solvents and Chemicals Co.

Called the William J. Hough Scholarships in honor of the company's founder, the scholarships will provide $400 a year for each of two students with either junior or senior standing in chemical engineering.

Students who intend to work in the paint, adhesive, chemical or metal fabricating industries in the Midwest will have preference for the annual scholarships.

Final selection of the recipients will be made by the Illinois Tech scholarship committee.

Hooker Electrochemical and Shea Chemical Consolidate

Shea Chemical Co. has been consolidated with and into Hooker Electrochemical Co. The continuing company will be called Hooker Chemical Corporation to more accurately represent the company's activities in chemicals and plastics, no longer limited to electrochemicals alone.

Commercial Filters Acquires Industrial Filtration

Commercial Filters Corporation, a subsidiary of Ogden Corporation, has acquired the Industrial Filtration Company, manufacturer of the Delpark line of solution filters.

Robert L. Fielding, president of Commercial Filters, announced that Delpark will operate as a part of Indiana Commercial Filters Corporation, with sales headquaters in Lebanon, Indiana.

Commercial Filters products now include Fulflo, CFC and Delpark Filters. Delpark products are primarily for the filtration of coolants, cutting oils, quenching oils, rolling oils, lubricants, and paint spray booth water. CFC Filters include Honan-Crane and Michiana models for the selective filtration of oils, plus water-oil separators, magnetic separators, automatic tubular conveyors, coolant clarifiers and settling tanks.

NEW POSITIONS

Eugene L. Sommers has been elected president of **Sommers Brothers Manufacturing Co.,** St. Louis manufacturer of plating and polishing supplies. Mr. Sommers succeeds his uncle, Carl J. Sommers, who died on May 5.

★ ★ ★

C. Heamon Castle has been appointed technical director of **Abrado Finish Corporation,** Grand Rapids, Michigan. Mr. Castle had been technical director and vice president of Roto-Finish Co., Kalamazoo, Michigan.

Howard L. Wright

C. Heamon Castle

Hanson-Van Winkle-Munning Company has appointed **Howard L. Wright** manager of Special Product Sales.

Establishment of the new sales section under Mr. Wright's direction is intended to develop new markets for the company, especially in the field of electrical and mechanical products, a company spokesman said.

J. Justin Basch has been appointed to the new position of marketing vice president of **Oakite Products, Inc.**, New York manufacturer of industrial cleaning and metal treating materials.

Mr. Basch, formerly vice president of research and product development, will now be responsible for sales, engineering, advertising, and marketing research.

E. P. Sullivan

Mr. Basch joined Oakite in 1925, was for many years Philadelphia division manager of the firm. He was elected to the board of directors in 1948 and became vice president in 1956. He has been responsible for product development since 1953.

William K. Murray has been promoted to manager of customer service by **Enthone, Inc., a subsidiary of American Smelting and Refining Company,** New Haven, Connecticut. In his new capacity, Mr. Murray will have charge of sales promotion, publicity and technical service.

Edward B. Washburn recently joined Enthone to succeed Mr. Murray as supervisor of the Technical Service Laboratory.

W. K. Murray

E. B. Washburn

W. W. Denhoff

George Knetl

Carl Schaefer

W. R. Schmidtke

Earl P. Sullivan, Wallace W. Denhoff and **George Knetl** have been promoted to new posts at the **Binks Manufacturing Company.**

Mr. Sullivan has been appointed district manager of the Chicago territory. Mr. Denhoff has been named assistant district manager under Mr. Sullivan. Mr. Knetl has been named assistant director of engineering and research.

Carl Schaefer has joined Enthone as production manager and purchasing agent. Prior to joining Enthone he was manager of metal finishing at Casco Products Corp., Bridgeport, Connecticut.

William R. Schmidtke has been appointed assistant office manager and safety director at Enthone. He comes

to Enthone from the New York Office of the American Smelting and Refining Company.

★ ★ ★

Anthony DePhillips has been appointed assistant branch manager of the Philadelphia branch sales office of **Diamond Alkali Company,** Cleveland, Ohio.

Mr. DePhillips, who has already assumed his new responsibilities, succeeds the late George J. Soren.

★ ★ ★

Heatbath Corporation has appointed **Peter Petroff** as sales representative in western Ohio, southern Indiana and northern Kentucky.

Heatbath has also transferred **Jim Wheeler** to the Chicago district, where he will assume new sales duties. Mr. Wheeler will continue to supervise sales in the area covered by Mr. Petroff.

★ ★ ★

Northwest Chemical Company, Detroit manufacturer of specialized metal cleaning compounds, has announced the appointment of two regional representatives.

Norman P. Rowan will be in charge of the Youngstown, Ohio and Pittsburgh, Pennsylvania areas.

Richard B. Chalker will represent the company in the Chicago area.

★ ★ ★

The election of **Norman E. Hathaway** as director and vice president-marketing for **Oronite Chemical Company** has been announced by T. G. Hughes, president of Oronite.

In his new job, Mr. Hathaway will direct all marketing of Oronite chemical products through company sales offices in the United States and overseas.

★ ★ ★

Eric Foote, assistant to the president of **The Diversey Corporation,** manufacturer and distributor of chemical products and detergents for industrial use, has been elected vice president in charge of manufacturing operations in the United States.

Mr. Foote will supervise seven plants in the United States.

Oliver J. Brown, Jr.

Eric Foote

Oliver J. Brown, Jr., has been appointed manager of continuous-equipment sales for **Hanson-Van Winkle-Munning Company.** Mr. Brown was formerly in charge of engineering for the company's continuous strip plating and cleaning system.

The move follows the recent announcement of a complete reorganization of H-VW-M's engineering and equipment sales divisions.

★ ★ ★

The Casalbi Company, Jackson, Michigan, has announced the appointment of **E. S. Browning** as distributor for the California area. The Browning Company has offices in San Francisco and Los Angeles.

Browning will handle the complete line of Casalbi barrel finishing equipment and supplies. The Casalbi Company's dealers in the San Francisco and Los Angeles areas will continue as in the past, but their business will be placed through Browning.

★ ★ ★

Bruce W. Dutter has been appointed technical representative for **Cowles Chemical Company,** Cleveland, Ohio. Mr. Dutter's territory will be the Pittsburgh area, which also includes Wheeling, West Virginia.

For the past three years Mr. Dutter

has been assistant to William Robinson, head of Cowles metal cleaner service laboratory.

Bruce W. Dutter

Wm. N. Lindsay, Jr.

William N. Lindsay, Jr., has joined the staff of **Barrett Chemical Products,** Shelton, Conn., in the capacity of sales manager. He will be responsible for relations with distributors selling the Barrett sulfamate nickel plating process.

Mr. Lindsay will also guide the marketing of sulfamate plating processes for the electrodeposition of cadmium, cobalt, copper and iron.

TRAINING COURSES

Gordon Research Conference to Feature Ten Papers on Organic Coatings

Ten papers on organic coating will be presented during the Gordon Research Conference on Organic Coatings, to be held July 7-11 at the New Hampton School in New Hampton, N. H.

E. R. Mueller, Battelle Memorial Institute, will serve as chairman of the conference, assisted by D. F. Koenecke, Esso Research and Engineering Company.

The following Papers will be presented: *Graft and Block Polymers,* by F. R. Eirich; *Vinyl Ethers of Unsaturated Fatty Alcohols: Promising New Protective Coating Vehicles,* by J. C. Cowan; *Monocarboxylic Aromatic Acids in Alkyd Coatings,* by R. L. Heinrich and D. A. Berry; *New Epoxy Resins in Surface Coatings,* by J. K. Craver; *Solution and Film-Forming Properties of Lexan Polycarbonates,* by D. W. Caird; *The Rheology of Film Application by Rollers,* by R. R. Meyers; *Application of Hydrodynamic Theory to Roll Mill Nip,* by J. H. Taylor; *A Study of Factors Affecting the Adhesion of Metal to Certain Vinyl Polymers,* by S. Gusman; *Factors Affecting Wettability of Organic Surfaces,* by E. Shafrin; and *Icephobic Coatings,* by H. Lacks.

Further data on the conferences is available from W. George Parks, Colby Junior College, New London, N. H.

Brooklyn Plating Course to Begin Fall Term on September 10

The electroplating course given at the *Fort Greene Evening High School,* 29 Fort Green Place, Brooklyn, N. Y., will begin its Fall term on September 10, 1958.

The course is divided into classroom discussion and laboratory experiments. Classroom topics include simple calculations, reading graphs, chemistry of the plating tank, pH, wetting agents, pitting, deionizing. Laboratory experiments include solution analysis, Hull Cell studies, anodizing.

Registration begins September 8, 1958, and is held daily thereafter from 7:00 to 9:00 P.M. The term ends January 31, 1959. Register with *L. Serota* in room BW17 or 3E2.

NECROLOGY

Carl J. Sommers

Carl J. Sommers, 64, president of Sommers Brothers Manufacturing Co., St. Louis, died on May 5, 1958. Mr. Sommers had been associated with the

plating and polishing industry for over 45 years, had been president of Sommers Brothers since 1941.

Louis J. Donroe

Louis J. Donroe, 52, general manager of Pyro Metal Finishers, Inc., died on May 12 of a sudden illness. Mr. Donroe joined Pyro Metal Finishers in 1929 as a chemist, left to be chief chemist of Royal Plating & Polishing Co., Inc., returned to Pyro as general manager five years ago. He was a past president of the Newark Branch, A.E.S.

Donald A. Kohr

Donald A. Kohr, 81, retired board chairman of The Lowe Brothers Company, died June 14 in Dayton, Ohio.

Donald Kohr

Mr. Kohr joined The Lowe Brothers Company in August, 1901, as a chemist, became assistant general superintendent in 1906, and general superintendent in 1912.

In 1916 he was named to the board of directors, and to the post of general manager in 1920. He also served as secretary and vice president before assuming the position of president in 1927.

Elevated to chairman of the board in 1954, Mr. Kohr held that position until his retirement in October, 1956.

MEETINGS of INTEREST to FINISHERS

July 26. Annual Stag Day, Detroit Branch, A. E. S., Hillcrest Country Club, Mt. Clemens, Mich.

AGATEEN

A large national firm writes:—*
"AGATEEN #13C has been found superior to other clear finishes in every respect for name plate applications."

* Name on application

AGATE LACQUER MANUFACTURING CO., INC.
SERVING INDUSTRY SINCE 1927
11-13 43rd Road
Long Island City, N. Y.
Stillwell 4-0660-1

AGATEEN
THE LAST WORD IN QUALITY

For more data circle 399 on Postpaid Card

September 28-October 2. Fall Meeting, The Electrochemical Society, Chateau Laurier, Ottawa, Canada.

Oct. 6-8. 36th Annual Meeting, Federation of Paint & Varnish Production Clubs, Cleveland Public Auditorium, Cleveland, Ohio.

Oct. 6-8. 23rd Annual Paint Industries' Show, Cleveland Public Auditorium, Cleveland, Ohio.

Nov. 1. Philadelphia Branch, A. E. S., Annual Educational Session and Banquet, Hotel Sheraton, Philadelphia, Pa.

Jan. 31, 1959. Annual Educational Session and Dinner Dance, Cleveland Branch, A. E. S., Cleveland, Ohio.

June 15-19, 1959. Golden Jubilee Convention and International Exposition, Fifth International Conference on Electrodeposition, Detroit, Mich.

PRODUCT LITERATURE

61. Fast-Application Buffing Compound
Information on a greaseless buffing compound that is packaged in a plastic container which wears away as the compound is used, eliminating the need for stripping off the cover. Atlantic Compound Co., 1862 Baldwin St., Waterbury, Conn.

62. Cloth Buffs
Descriptive literature on Zippo Cloth buffs. Formax Mfg. Corp., Detroit 7, Mich.

63. Abrasive Belt Polishing Machines
Information on Hill Acme abrasive belt polishing machines for polishing flat surfaces of ferrous and non-ferrous metals. The Hill Acme Co., 1207 W. 65th St., Cleveland 2, Ohio.

64. Printed Circuits
Information on silk screens and ink for making printed circuits. Naz-Dar Co., 461 Milwaukee Ave., Chicago 10, Ill.

65. Clear Lacquers
Data on clear lacquers especially formulated to be used in protecting highly polished metals and those that tarnish easily. Randolph Products Co., Carlstadt, New Jersey.

66. Industrial Ovens
Bulletin 157 is a 16-page booklet describing a complete line of industrial ovens for baking, drying, curing and heat treating. Young Brothers Co., 1830 Columbus Rd., Cleveland 13, Ohio.

67. Water Wash Spray Booth Compound
Information on Diff. LX Klarifiant, a spray booth compound that is said to prevent clogged nozzles, booth rusting, foam, and curtain "build-up." DuBois Co., Inc., 1120 W. Front St., Cincinnati 3, Ohio.

68. Versatile Corrosion Preventive
Information on Irilac No. 1000, a clear protective coating that improves corrosion resistance of any metal, bare or after conversion coating. Can be applied to wet or dry surfaces by dipping, spraying or brushing. Allied Research Products, Inc., 4004-06 E. Monument St., Baltimore 5, Md.

69. Baking Ovens
Catalog No. 560 describes company's line of drying and baking ovens. The Lanly Co., 2800 Euclid Ave., Cleveland 15, Ohio.

70. Trichlorethylene Degreasing Solvents
Information on three types of trichlorethylene degreasing solvents: Neu-Tri, Alk-Tri, and Hi-Tri. Dow Chemical Co., Midland, Mich.

71. Plating Timer
A 4-page catalog describes company's line of timers, which automatically cut off the current at the end of a plating cycle and at the same time signal with a light and buzzer. Cadillac Rectifier Div., R.E.P. Electric Products Co., 539 Webster Ave., New Rochelle, N. Y.

72. Guide to Chemical Treatments of Metals
An eight-page brochure describes conversion coatings for steel, aluminum, galvanized iron, zinc and cadmium plated surfaces; for corrosion resistance, paint bonding, drawing and forming, and protection of friction surfaces. Also lists current specification chemicals for U. S. Government and its contractors. Amchem Products, Inc., Ambler 14, Pa.

73. Stripping Conveyor Paint Hooks
Information on Electro Cold Stripper, a non-flammable stripper for removing paint from hooks, racks and baskets used in conveyorized painting; stripping rejected parts; and so on. Acts quickly, rinses off with water. Samples available. Allied Finishing Specialties Co., 2641 W. Grand Ave., Chicago 12, Ill.

74. Spray-Gun-Motion Study
A 15-page booklet analyzes spray gun techniques, tells how to obtain the best quality finish with the least fatigue, and at minimum cost. The DeVilbiss Co., Toledo 1, Ohio.

75. Copper Plating Instructions
Technical data on operation of Coppralyte copper plating chemicals—potassium and sodium formulations. Sections deal with choosing the bath—sodium or potassium; bath conversion from sodium to potassium; bath makeup and preparation; bath replenishment, filtration equipment, pumps, and so on. Also has section on troubles and their correction, and directions for solution analysis. E. I. du Pont de Nemours & Co. (Inc.), Electrochemicals Dept., Wilmington 98, Del.

76. When to Consider Use of Automatic Spray
Eight-page booklet covers spray painting of parts, sub-assemblies and complete products. It discusses the sizes and shapes of parts that can be painted automatically. Eclipse Air Brush Co., 381 Park Ave., Newark 7, N. J.

77. Test Panels
Data sheet describes Q-Panels, standard metal panels that are specially made to be used in testing coatings. Gardner Laboratory, Inc., 5521 Landy Lane, Bethesda 14, Md.

78. Cabinet Ovens
Literature on ovens designed for closely controlled laboratory and production work. Grieve-Hendry Co., Inc., 1414 W. Carroll Ave., Chicago 7, Ill.

79. Simple Methods for Analyzing Plating Solutions
A 30-page manual gives detailed instructions for analyzing various plating solutions. Includes lists of equipment necessary for determinations, analytical reagents required, useful data tables. Hanson-Van Winkle-Munning Co., Matawan, New Jersey.

80. Wood Tank Handbook
Reference source on wood tanks describes uses of wood tanks, capacities, physical and chemical properties of wood and their relation to expected service of wood tanks, and so on. National Wood Tank Institute, 332 S. Michigan Ave., Chicago 4, Illinois.

81. Power Spray Cleaners
Comprehensive line of cleaners designed for use in power spray washing machines is described in Technical Data Sheet No. 7, a five-page usage and instruction sheet. The cleaners described cover a wide range of variables, such as basis metal, type of soil, water, time, temperature, pressure and volume of solution. MacDermid, Inc., Waterbury 20, Conn.

82. Crack-Free Chromium Plating
A 4-page folder on the Crack-Free Chromium plating process. Describes improved corrosion resistance, crack-free structure, buffability and other properties of this material. Metal & Thermit Corp., Rahway, N. J.

83. Paint Shaker
Data sheet gives specifications and information on vibratory shakers for agitating the contents of five-gallon cans of paint without removing the lid. Miracle Paint Rejuvenator Co., 500 N. Robert St., St. Paul 1, Minn.

84. How to Strip Paint
Booklet includes list of strippers formulated for removing various types of finishes; description of stripping methods; procedure for painting after stripping off paint. Oakite Products, Inc., 20 Rector St., New York 6, N. Y.

85. Cold Solvent Stripper
Fact sheet on Octastrip 444, a cold solvent stripper. Tells how to use, what materials may be stripped. Octagon Process, Inc., 15 Bank St., Staten Island 1, New York.

86. Aluminum Conversion Coatings
Folder on the new Bonderite 700 Series for coating aluminum. Parker Rust Proof Co., 2172 E. Milwaukee Ave., Detroit 11, Michigan.

87. Water Treatment Equipment
Bulletin 4433 is entitled "Outline of Modern Water Treatment Equipment," lists water impurities and treatment methods, illustrates typical treatment systems, describes aerators, precipitation equipment, filters and ion-exchange equipment. The Permutit Co., 50 W. 44th St., New York 36, New York.

88. Chromate Coating
Bulletin 4-2 describes Promat 2080 chrome-type protective film for zinc and zinc alloys. Produces dark film with high corrosion resistance. Promat Div., Poor & Co., 851 S. Market St., Waukegan, Ill.

89. The Water Separator in Vapor Degreasing
Reprint discusses effect of free water in a degreaser, how water enters a degreaser, and how it can be removed. Ramco Equipment Corp., 1377 Lafayette Ave., New York 59, N. Y.

90. Rhodium Plating Literature
A 24-page booklet tells where, when and how to use rhodium electroplates for electrical, electronic and other exacting industrial applications. Sel-Rex Corp., Nutley 10, N. J.

91. Protective Closures Catalog
A 4-page catalog on Shurclose Caps and Plugs gives complete specifications for both rubber and plastic closures for the protection, sealing or masking of threaded parts, pipe ends or tubing. Shurclose Seal Co., 3000 E. Grand Blvd., Detroit 2, Mich.

92. Push Button Paint
Booklet entitled "Aerosols Unlimited" tells about spray painting with aerosol packaged paints. Sprayon Products, Inc., 2077 E. 65th St., Cleveland 3, Ohio.

93. Industrial Spray Nozzles
Catalog No. 24, a 48-page booklet, contains complete data on various spray nozzles and accessories used in industry. Nozzles are listed in tabular form, and complete information is given on pipe sizes, external dimensions, orifice diameters, capacities and spray angles. Spraying Systems Co., 3229 Randolph St., Bellwood, Ill.

94. Liquid Buffing Compound
Data sheet points out the advantages of using Liquispray in cost savings and increased efficiency and quality. The Stutz Co., 4410 Carroll Ave., Chicago 12, Ill.

Circle numbers on postpaid card inside back cover to obtain free literature

95. For Stripping Copper
Ten-page booklet describes Liquid Sulphur process for stripping copper. Includes list of physical and chemical properties for this material; process details; control procedures, and so on. Sulphur Products Co., Inc., Greensburg, Pa.

96. Aircraft Manufacturing Products
Folder lists and describes products used in the manufacture of aircraft. Includes various materials for cleaning aluminum; products for cleaning magnesium; cleaning steel; and spray booth maintenance. J. B. Ford Div., Wyandotte Chemicals Corp., Wyandotte, Mich.

97. Coated Abrasives
Information on the company's line of coated abrasive products: belts, rolls, sheets, discs, specialties. Abrasive Products, Inc., South Braintree 85, Mass.

98. Screen Process Dryers
Catalog Sheet No. 1057 describes the Auto-Rack wicket-type dryer, a drying unit for screen process printing. Can be synchronized with the delivery of any automatic press. Advance Process Supply Co., Inc., 1442 W. Kinzie St., Chicago, Ill.

99. Tank Lining
Data on Amer-Plate PVC Tank Lining, which is said to withstand hard chrome liquor at temperatures up to 160 deg. F.; resist corrosive salts, strong acids, and oxidizing materials; adhere directly to concrete, without an interlining. Amercoat Corp., Dept. EC, 4809 Firestone Blvd., South Gate, Calif.

100. Cut Anode Waste
Information on reducing waste of costly anodes by purifying plating baths with activated carbon so as to reduce rejects. Chemicals Div., Atlas Powder Co., Wilmington 99, Del.

101. Polishing Felt
A 12-page booklet describes and illustrates some of the many ways that felt can be used to produce a fine surface finish. Includes table to guide the user in determining the best combination of materials for polishing, finishing and buffing. Gives instructions for setting up and caring for felt wheels. Bacon Felt Co., 447 W. Water St., Taunton, Mass.

102. Centrifugal Machinery
A 15-page brochure describes centrifugal machines for removing oil from chips, parts and grinding sludge; machines for drying small parts; combination washer-dryers; oil-recovery and reconditioning systems; centrifugal galvanizers; centrifugal enamelers; and impregnators. The Leon J. Barrett Co., 1449 Grafton Rd., Worcester 1, Mass.

103. Stripper for Tough Finishes
Brochure describes Epoxystrip, a paint stripper formulated to remove organic finishes that resist stripping. Beck Equipment Co., 3350 W. 137th St., Cleveland 11, Ohio.

104. Economy Plating Racks
Information on ready-made, mass-produced standard plating racks. Belke Manufacturing Co., 947 Cicero Ave., Chicago 51, Illinois.

105. Fast-Spray Booth Coating
Details on a low-viscosity booth coating that is said to go on more easily and quickly, without cobwebbing. Better Finishes & Coatings, Inc., 268 Doremus Ave., Newark 5, N. J.

106. Water Wash Spray Booths
Bulletin DUE tells how water curtains in Dynaprecipitor spray booths remove air-entrained pigments from spray booth exhaust air. Drawings show construction features and ease of maintenance. Binks Manufacturing Co., 3118-40 Carroll Ave., Chicago 12, Ill.

107. Protect Highly Polished Surfaces
Information on Neotex, an open-mesh rubber matting that can be used to line any surface where highly polished goods are worked on or in transit. Research Products Corp., Dept. 76, Madison 10, Wisconsin.

108. Degreasing Solvent
Information on Blacosolv degreasing solvent. G. S. Blakeslee & Co., 1844 S. Laramie Ave., Chicago 50, Ill.

109. Wipe Off Dust
Sheet on specifications for tack cloths tells advantages of using these treated cloths to remove dusts, lint and sanding particles from products to be finished. Bond Chemical Products Co., 2639 N. Clybourn Ave., Chicago 14, Ill.

110. Self-Sticking Felt
Data Sheet No. 187 describes adhesive-backed pre-cut felt, which is useful in preventing scratching and marring of highly polished surfaces during handling, shipping or storing. W. H. Brady Co., 746 W. Glendale Ave., Milwaukee 9, Wisconsin.

111. Complete Finishing Systems
Catalog describes complete integrated systems for applying organic finishes. Burdett Manufacturing Co., 4916 S. Monitor Ave., Chicago 38, Ill.

112. Room-Temperature Blackening
Literature on Dicropan, a non-caustic blackener that works in as little as 13 seconds, at room temperature. Bob Brownell's, Corner Main & Third, Montezuma, Iowa.

113. Drying Ovens
Information on gas-fired recirculating ovens in many types and sizes. The Carl Mayer Corp., 20800 Center Ridge Rd., Cleveland 16, Ohio.

114. Heavy-Duty Coating
Bulletin E-900 describes a one-coat heavy-duty protective coating for structural steel, tanks, stacks, walls and floors, other applications where corrosion is a problem. The Ceilcote Co., Inc., 4848 Ridge Rd., Cleveland 9, Ohio.

115. Rhodium Plating Solutions
Literature describes the company's line of rhodium plating solutions. Sigmund Cohn Mfg. Co., Mount Vernon, N. Y.

116. Vacuum Plating
Information on depositing metallic coatings by the vacuum plating method. Consolidated Electrodynamics, Rochester, Div., Rochester 3, N. Y.

117. Copper Cyanide
Ledoux's Laboratory Report shows that CP's copper cyanide has high purity necessary to produce good plating results. Copies available. Copper Pigment & Chemical Works, Elizabeth 2, N. J.

118. Aluminum-Processing Chemicals
Technical data sheets describe aluminum-processing chemicals: cleaners, desmutting chemicals, etchants. Cowles Chemical Co., 7016 Euclid Ave., Cleveland 3, Ohio.

119. Bronze Powders
Color card shows 33 colors of bronze-like finishes that can be produced from stock Cres-Lite bronze powders. Crescent Bronze Powder Co., 118 W. Illinois St., Chicago 10, Ill.

120. Spray Nozzles
Catalog D 33 A illustrates, describes, gives specifications for complete line of spray nozzles. Delavan Manufacturing Co., West Des Moines, Iowa.

121. Speed Chrome Plating
Information on Diamond CPA 1800, an additive for chrome plating that improves throwing power, speed and metallurgical characteristics of chromium plate. Diamond Alkali Co., 300 Union Commerce Bldg., Cleveland 14, Ohio.

122. Drying and Baking Booklet
Data Booklet D117 shows how heating units and ovens of all sizes and shapes can be built at low cost from prefabricated interlocking infrared sections. Dry Clime Lamp Corp., Greensburg, Indiana.

123. Black Finishes
Information on Ebonol products for blackening steel, copper, brass, zinc. Enthone, Inc., 442 Elm St., New Haven 11, Conn.

124. Blasting Abrasives
Data on Exolon Fastblast abrasives. The Exolon Co., 943 E. Niagara St., Tonawanda, N. Y.

125. Prevent Wear on Buffing Fixtures
General information folder tells about Fusecoating buffing fixtures to prevent wear by abrasion. Fusion Metal Coating Co., 25493 W. Eight Mile Rd., Detroit 19, Mich.

126. Roller Coating Equipment
Information on Gasway Rollacoating Equipment. Gasway Corporation, 6463 N. Ravenswood Ave., Chicago 26, Ill.

127. Germanium Rectifiers
Information on a complete line of germanium rectifiers. General Electric Co., Rectifier Dept., Mountain View Road, Lynchburg, Va.

128. Finishing Flat Parts
Data on how to finish flat parts with Model FF-6 abrasive belt polishing machine. Hammond Machinery Builders, Inc., 1622 Douglas Ave., Kalamazoo, Michigan.

129. Fluoborates
Data on fluoborate plating chemicals: cadmium, copper, lead, nickel, tin, zinc, fluoboric acid. Harshaw Chemical Co., 1945 E. 97th St., Cleveland 6, Ohio.

130. Metal Treatment Chemicals
Folder describes full line of black oxide finishes, chromate coatings, cleaners, oils, and strippers. Heatbath Corp., Springfield 1, Mass.

131. Tumbling Barrels
Catalog describes and illustrates a complete line of tumbling barrels. Henderson Brothers Company, 138 S. Leonard St., Waterbury, Conn.

132. Used Equipment
Information on used buffing and polishing machines. J. Holland & Sons, Inc., 485 Keap St., Brooklyn 11, N. Y.

133. Plating Waste Recovery
Literature describes systems for recovering valuable materials from plating wastes. These systems will return fresh plating solutions to the plating tanks and at the same time return pure water to rinse tanks. Industrial Filter & Pump Mfg. Co., 5904 Ogden Ave., Chicago 50, Illinois.

134. Answers to Cleaning Problems
File folder gives answers to many cleaning problems, includes data on alkaline cleaning, barrel finishing, descaling, emulsion cleaning, pickling, phosphatizing, rust prevention, rust removal, other related subjects. Magnus Chemical Co., Inc., 208 South Ave., Garwood, N. J.

Circle numbers on postpaid card inside back cover to obtain free literature

135. Spray Booth Filters
Information on Delpark Paint Spray Booth Filters for removing the overspray paint particles from water used in the water curtains of water-wash spray booths. Industrial Filtration Co., 166 Industrial Ave., Lebanon, Ind.

136. Pearlescent Finishes
Information on Nacromer YNC, an additive that is used in standard organic finishes to produce a pearlescent finish. The Mearl Corporation, 124 E. 40th St., New York 16, N. Y.

137. Degreasers
Folder describes a complete line of degreasers: laboratory, two-dip, three-dip, vapor spray, barrel type, automatic, semi-automatic. Mechanical Process Co., Inc., 392 Valley St., South Orange, N. J.

138. Drum Rotators
Bulletin 355 describes six models of portable and stationary drum rotators, tells how these machines can be used in mixing, blending, tumbling and cleaning operations. Morse Mfg. Co., Inc., 762 W. Manlius St., E. Syracuse, N. Y.

139. Roller Coaters
Bulletin 11-A, Part 6, contains detailed discussion of company's No. 22-D roller coaters: construction features, operation, adjustments and controls, optional equipment and so on. Black Brothers Co., Inc., Mendota, Ill.

140. Preparing Aluminum for Plating
Data on Alkaline Pre-Plate, a zincate bath used to prepare aluminum for plating. Northwest Chemical Co., 9310 Roselawn, Detroit 4, Mich.

141. Tumbling Abrasives
Information on Tumblex barrel finishing abrasives. Norton Co., Worcester 6, Massachusetts.

142. Acrylic Enamel
Information on Duracron thermosetting acrylic enamels, now available in formulations that cure at lower temperatures. Pittsburgh Plate Glass Co., Industrial Finishes Div., 1 Gateway Center, Pittsburgh, Pa.

143. Fusion-Bond Finishes
Bulletin on Corvel finishing resins, which are applied by dipping a heated metal part into the fluidized bed of dry powders. National Polymer Products, Inc., Reading, Pa.

144. Electrostatic Spray Painting
No. 2 Process Brochure cites many examples of installations where electrostatic spray painting has been used to advantage. Ransburg Electro-Coating Corp., Indianapolis 7, Indiana.

145. Washing Machines
Booklet entitled "The Ransohoff Story" describes company's facilities, illustrates many different types of cleaning machines built by the company, including drum-type washers, conveyor-type wash, rinse and dry machines, cabinet-type "walking spray" machines, deburring machines, others. Ransohoff, Inc., North Fifth and Ford Blvd., Hamilton, Ohio.

146. Pearlescent Finishes
Information on air-dry and baking pearlescent finishes. Rona Laboratories, Inc., East 21st and East 22nd Sts., Bayonne 4, New Jersey.

147. Depth Filtration
Folder contains data on Sethco Filter Pump units built for filtering electroplating solutions. Sethco Mfg. Co., 2292 Babylon Turnpike, Merrick, L. I., N. Y.

148. Automatic Metal Finishing
Information on "Little Steve," a compact automatic processing machine that can be adapted to anodizing, dip-painting, flow coating, bright dipping, ultrasonic cleaning, electropolishing, tin immersion processing, other finishing processes. Frederic B. Stevens, Inc., Detroit 16, Michigan.

149. Etch Primer
Data on Gripalloy, a satin sheen etching primer said to have excellent adhesion on 25 different metals, good resistance to salt spray, gasoline and solvents. Tenax, Newark, N. J.

150. Cob Grits for Blasting, Tumbling
Information on corn cob grits that are used as tumbling media and in blast cleaning. Ti-Co Industries, Inc., P. O. Box 185, Tipton, Indiana.

151. Brass Plating Solution
Technical bulletin on True Brite Brass. True Brite Chemical Products Co., Box 31, Oakville, Conn.

152. Chromium Plating Additive
Data on Udylite Zero-Mist H.T.-2, an additive for chromium plating baths. This material stops mist and spray, lowers surface tension to reduce dragout. Udylite Corp., Detroit 11, Mich.

153. Durable Finish
Information on Kadmoid, a tough, durable finish said to offer peak resistance to salt and other chemicals on products that must resist outdoor exposure. Universal Paint & Varnish, Inc., Box 199, Bedford, Ohio.

154. Anode Hooks
Information on PPI Uzall anode hooks. Plating Products, Inc., 1509 N. Washington, Kokomo, Indiana.

155. Electroplating Course
Information on a correspondence course in metal finishing. Joseph B. Kushner Electroplating School, 115 Broad St., Stroudsburg, Pa.

156. How Much Are You Paying for Dust?
Literature explains the economies of dust control: reduced operating time and machine operating costs, increased employee efficiency. Contains application stories and photos of typical installations. Dept. KP-5, Torit Manufacturing Co., Walnut & Exchange Sts., St. Paul, Minn.

157. Plating Rack
Data sheet illustrates desirable features of a 40-part utility rack. Mitchell-Bate Co., 17 Brown St., Waterbury 2, Conn.

158. Water Treatment for Spray Booths
Details on a liquid additive for spray booth water used in water wash spray booths. This material is said to give excellent results in protecting equipment and making reclaim of overspray possible. North American Mogul Products Co., Room 2080 Standard Bldg., Cleveland 13, Ohio.

159. Vapor Degreasing Handbook
An informative 25-page booklet answers 43 questions about vapor degreasing. Typical questions: What factors should be considered in locating a degreaser? Will vapor degreaser remove paint? What is the maximum operating speed for a degreaser? Phillips Manufacturing Co., 3475 W. Touhy Ave., Chicago 45, Ill.

160. Sealing and Finishing Porous Castings
Information on Cordobond R-203, a sealing and finishing compound for porous metal castings. Said to be corrosion resistant, impervious to action of water, sulfur, acids, alkalis and other deteriorants. Cordo Chemical Corp., 34 Smith St., Norwalk, Conn.

450. Moisture Separators
Literature describes company's moisture separators for removing dirt and moisture from compressed air used in spraying and other applications. Describes operation, gives specifications. These units operate automatically, removing all damaging moisture and foreign particles before they reach the precision parts of the air compressor. Wilkerson Corporation, 1601 W. Girard Ave., Englewood 8, Colorado.

451. Instant Stripper
Literature on a non-flammable, nontoxic stripper that removes most finishes almost instantly—enamels, lacquers, synthetics, paints, varnishes, hammer finishes, wrinkle finishes, many special finishes. V. J. Dolan & Co., Inc., 1830 N. Laramie Ave., Chicago 39, Ill.

452. Colored Zinc Chromate
Information on the Luster-On chromate dip process for zinc plated parts. This process produces a coating that can be dyed many colors to add to the appearance and sales appeal of a product. The Chemical Corp., 75 Waltham Ave., Springfield, Mass.

Classified Advertising

SOUTH FLORIDA TEST SERVICE
Testing—Inspection—Research—Engineers
Consultants and specialists in corrosion, weathering and sunlight testing.
4201 N. W. 7th St. • Miami 44, Florida

SALESMEN
Distributors, Jobbers and Manufacturers Agents, with metal finishing contacts preferred to sell and distribute the complete line of McAleer's Polishing and Buffing Compounds in spray, paste or extruded bars. Write or phone.
McALEER MANUFACTURING CORP.
101 S. Waterman • Detroit 17, Michigan
Vinewood 3-5970

Products Finishing DIRECTORY
Buyers' Guide for:
Equipment, Materials and Processes used in the Finishing Industry • Electroplating • Paint Finishing • Porcelain Enameling • Vacuum Metalizing

Space on this page is available for advertising of SERVICES, EMPLOYMENT, USED MACHINERY & EQUIPMENT, ETC.
Sold in inch units, one column wide. Rate: $22.00 per column-inch.
PRODUCTS FINISHING
431 Main St. Cincinnati 2, Ohio

OPPORTUNITY SECTION

The Finishing Touch

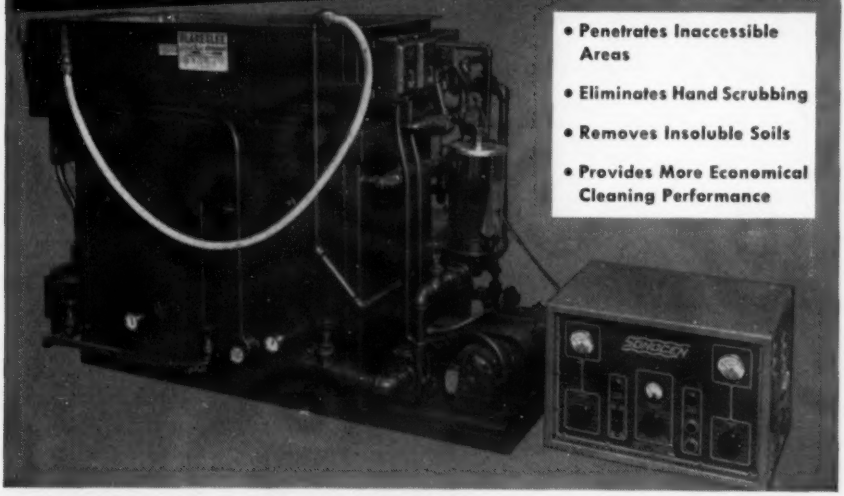
Well, you said just stack 'em—you didn't say 'neatly'!"

For Fast Production Line Operation

BLAKESLEE

Ultrasonic PARTS CLEANING EQUIPMENT

...CONVEYORIZED AND OPEN TANK MODELS



- Penetrates Inaccessible Areas
- Eliminates Hand Scrubbing
- Removes Insoluble Soils
- Provides More Economical Cleaning Performance

Blakeslee Degreasers and Parts Washers, combined with Branson "Sonogen" Ultrasonic Equipment, enable you to profit from the outstanding service and engineering know-how of two top leaders in the field. Available in combination with Blakeslee immersion stage open tank and conveyorized degreasers and parts washing machines, this advanced method removes all solid and soluble soils to provide highest quality cleaning—with results never before obtainable on a production basis.

To improve your cleaning, increase production and lower your costs, write, wire or phone for complete data on Blakeslee "Ultrasonic" Equipment. Please Address Dept. 104-B.

G.S. BLAKESLEE & CO. 1844 So. Laramie Ave., Chicago 50, Ill.
NEW YORK • LOS ANGELES • TORONTO

For more data circle 400 on Postpaid Card

JULY ADVERTISERS' INDEX

Abrasive Products, Inc. 9
Agate Lacquer Mfg. Co., Inc. 151
Allied Finishing Specialties Co. 117
Allied Research Products, Inc. 62, 63
Amchem Products, Inc. 55
Amercoat Corp. 83
Atlantic Compound Co. 105
Atlas Powder Co., Chemicals Div. 87

Bacon Felt Co. 115
Barrett Co., Leon J. 123
Beck Equipment Co. 131
Belke Mfg. Co. 103
Better Finishes & Coatings, Inc. 41
Binks Mfg. Co. 64-A,-B,-C,-D
Blakeslee & Co., G. S. 159
Bond Chemical Products Co. 111
Brady Co., W. H. 124
Brownell's, Bob 78
Burdett Mfg. Co. 11

Carl Mayer Corp. 142
Ceilcote Co., Inc. 121
Chemical Corp. 100
Chicago Rubber Co. 107
Cohn Mfg. Co., Inc., S. 129
Consolidated Electrodynamics Corp. 22
Copper Pigments & Chemical Wks., Inc. 10
Cordo Chemical Co. 3
Cowles Chemical Co. 28
Crescent Bronze Powder Co. 119

Dean Thermo-Panel Coil Div. 140
Delavan Mfg. Co. 76
DeVilbiss Co. 24, 25
Detroit Industrial Process Co. 120
Diamond Alkali Co. 12, 75
Dixon & Rippel, Inc. 116
Dow Chemical Co. 44, 45
Dry Clime Lamp Corp. 111
DuBois Co., Inc. 23

Eclipse Air Brush Co. ..... Fourth Cover
Enthone, Inc. 4
Exolon Co. 15

Formax Mfg. Corp. 98
Fusion Metal Coating Co. 118

Gardner Laboratory, Inc. 140
Gasway Corp. 71
General Electric Co. 26, 27
Grieve-Hendry Co. 86

Hammond Mchry. Builders, Inc. 7
Harshaw Chemical Co. 20
Heatbath Corp. 119
Henderson Bros. Co. 18
Hill Acme Co. 46
Holland & Sons, Inc., J. 130

Industrial Filter & Pump Mfg. Co. 80, 81
Industrial Filtration Co. 51

Kalamazoo Tank & Silo Co. 104
Kushner Electroplating School 136

Lanly Co. 134

MacDermid, Inc. ..... Third Cover
Magnus Chemical Co., Inc. 89
Mearl Corp. 77
Mechanical Process Co., Inc. 122
Metal & Thermit Corp. 109
Miracle Paint Rejuvenator Co. 132
Morse Mfg. Co., Inc. 134

National Polymer Products, Inc. 99
Naz-Dar Co. 102
New Holland Machine Co. 127
Northwest Chemical Co. 8
Norton Co. 2

Oakite Products, Inc. 1
Octagon Process, Inc. 73

Parker Rust Proof Co. 14
Pittsburgh Plate Glass Co. 112, 113
Plating Products, Inc. 117
Promat Div., Poor & Co. 84

Ramco Equipment Corp. 108
Randolph Products Co. 110
Ransburg Electro-Coating Corp. 19
Ransohoff, Inc. 21
Research Products Corp. 115
Rona Laboratories, Inc. 126

Sel-Rex Corp. 59
Sethco Mfg. Co. 106
Sherwin-Williams Co. ..... Second Cover
Solvents & Chemicals Group 85
Solvents Recovery Service, Inc. 142
Spraying Systems Co. 125
Sprayon Products, Inc. 43
Stevens, Inc., Frederic B. 61
Stutz Co. 6
Sulphur Products Co. 138

Tenax Finishing Products Co. 138
Ti-Co Industries, Inc. 136
True Brite Chemical Products Co. 128

Udylite Corp. 16, 17
Universal Paint & Varnish Co. 13

Wyandotte Chemicals Corp. 101

Young Bros. Co. 114

1	17	33	49	65	81	97	113	129	145	301-2nd Cov.	330	346	362	378	394	410	426	442
2	18	34	50	66	82	98	114	130	146	302-3rd Cov.	331	347	363	379	395	411	427	443
3	19	35	51	67	83	99	115	131	147	303-4th Cov.	332	348	364	380	396	412	428	444
4	20	36	52	68	84	100	116	132	148	304	317	333	349	365	381	397	413	429	445
5	21	37	53	69	85	101	117	133	149	305	318	334	350	366	382	398	414	430	446
6	22	38	54	70	86	102	118	134	150	306	319	335	351	367	383	399	415	431	447
7	23	39	55	71	87	103	119	135	151	307	320	336	352	368	384	400	416	432	448
8	24	40	56	72	88	104	120	136	152	308	321	337	353	369	385	401	417	433	449
9	25	41	57	73	89	105	121	137	153	309	322	338	354	370	386	402	418	434	450
10	26	42	58	74	90	106	122	138	154	310	323	339	355	371	387	403	419	435	451
11	27	43	59	75	91	107	123	139	155	311	324	340	356	372	388	404	420	436	452
12	28	44	60	76	92	108	124	140	156	312	325	341	357	373	389	405	421	437	453
13	29	45	61	77	93	109	125	141	157	313	326	342	358	374	390	406	422	438	454
14	30	46	62	78	94	110	126	142	158	314	327	343	359	375	391	407	423	439	455
15	31	47	63	79	95	111	127	143	159	315	328	344	360	376	392	408	424	440	456
16	32	48	64	80	96	112	128	144	160	316	329	345	361	377	393	409	425	441	457

JULY, 1958

NAME _____ POSITION _____

COMPANY _____

STREET _____

CITY _____ ZONE _____ STATE _____

PRODUCTS MANUFACTURED _____

Circle numbers (NOT PAGE NUMBERS) to request information

1	17	33	49	65	81	97	113	129	145	301-2nd Cov.	330	346	362	378	394	410	426	442
2	18	34	50	66	82	98	114	130	146	302-3rd Cov.	331	347	363	379	395	411	427	443
3	19	35	51	67	83	99	115	131	147	303-4th Cov.	332	348	364	380	396	412	428	444
4	20	36	52	68	84	100	116	132	148	304	317	333	349	365	381	397	413	429	445
5	21	37	53	69	85	101	117	133	149	305	318	334	350	366	382	398	414	430	446
6	22	38	54	70	86	102	118	134	150	306	319	335	351	367	383	399	415	431	447
7	23	39	55	71	87	103	119	135	151	307	320	336	352	368	384	400	416	432	448
8	24	40	56	72	88	104	120	136	152	308	321	337	353	369	385	401	417	433	449
9	25	41	57	73	89	105	121	137	153	309	322	338	354	370	386	402	418	434	450
10	26	42	58	74	90	106	122	138	154	310	323	339	355	371	387	403	419	435	451
11	27	43	59	75	91	107	123	139	155	311	324	340	356	372	388	404	420	436	452
12	28	44	60	76	92	108	124	140	156	312	325	341	357	373	389	405	421	437	453
13	29	45	61	77	93	109	125	141	157	313	326	342	358	374	390	406	422	438	454
14	30	46	62	78	94	110	126	142	158	314	327	343	359	375	391	407	423	439	455
15	31	47	63	79	95	111	127	143	159	315	328	344	360	376	392	408	424	440	456
16	32	48	64	80	96	112	128	144	160	316	329	345	361	377	393	409	425	441	457

JULY, 1958

NAME _____ POSITION _____

COMPANY _____

STREET _____

CITY _____ ZONE _____ STATE _____

PRODUCTS MANUFACTURED _____

FIRST CLASS
PERMIT No. 1702
CINCINNATI, OHIO

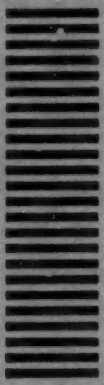
BUSINESS REPLY CARD
No Postage Stamp Necessary If Mailed In the United States

4 c POSTAGE WILL BE PAID BY—

Products Finishing

431 MAIN ST.

CINCINNATI 2, OHIO



Your Monthly Source For Finishing Ideas

FIRST CLASS
PERMIT No. 1702
CINCINNATI, OHIO

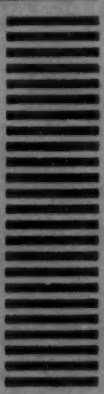
BUSINESS REPLY CARD
No Postage Stamp Necessary If Mailed In the United States

4 c POSTAGE WILL BE PAID BY—

Products Finishing

431 MAIN ST.

CINCINNATI 2, OHIO

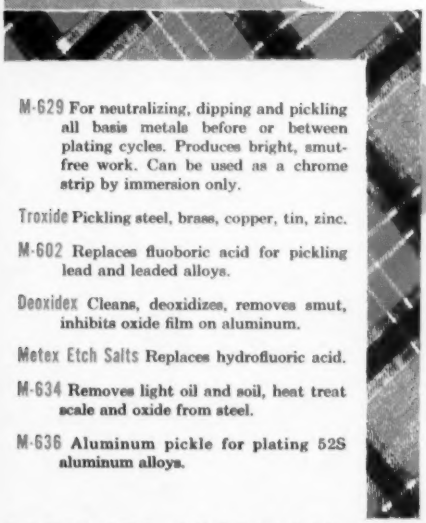


LOOK OUT... acid

Reduce costs... handling... danger... with MacDermid Dry Acid Replacement Salts

Acids in dry powder form are as safe and easy to handle as a barrel of flour! MacDermid Dry Acid Replacement Salts eliminate costly and dangerous carboys . . . simplify storage . . . end the danger of handling liquid acids—all without sacrificing quality.

The use of MacDermid's line of dry acid replacement salts immediately reduces costs at every stage in metal finishing. Write today for more information or call a MacDermid representative to show you the most economical, most efficient way to handle all your metal finishing problems.



M-629 For neutralizing, dipping and pickling all basis metals before or between plating cycles. Produces bright, smut-free work. Can be used as a chrome strip by immersion only.

Troxide Pickling steel, brass, copper, tin, zinc.

M-602 Replaces fluoboric acid for pickling lead and leaded alloys.

Deoxidex Cleans, deoxidizes, removes smut, inhibits oxide film on aluminum.

Metex Etch Salts Replaces hydrofluoric acid.

M-634 Removes light oil and soil, heat treat scale and oxide from steel.

M-636 Aluminum pickle for plating 52S aluminum alloys.

MacDermid ...right to the Finish!

MacDermid Incorporated
Waterbury, Connecticut, PLaza 4-6161
Ferndale, Detroit, Michigan, Lincoln 5-0064
MacDermid Pacific, Torrance, California, DAvis 3-6292

COMPLETE SUPPLIERS TO THE METAL FINISHING INDUSTRY

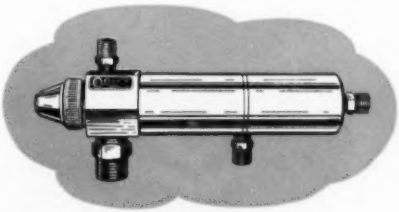
For more data circle 302 on Postpaid Card

50th Anniversary of ECLIPSE AIR BRUSH CO.

Eclipse to Introduce New Equipment, New Models in Many Lines Throughout 1958

For fifty years, Eclipse has been pioneering many of the firsts in the spray painting industry—from Low Pressure spray principle, to extension guns, through portable explosion-proof mixers. Continuing this forward development and engineering, Eclipse will announce many startling firsts throughout 1958—a part of its golden anniversary celebration.

SPRAY-ROD—Entirely new design production hand spray gun. Better atomization, greater handling ease and operator convenience.



GUK Gun—New automatic. Sprays heavy sound-deadening materials, underbody coatings, asphaltums, and fibrated materials. Used extensively in heavy steel stamping plants (automotives, appliances), automated production lines, heavy building materials.

MINI-ROD—New concept in a tiny touch-up gun. Convenient finger-touch control gives accurate results on small work without operator fatigue.

Write for descriptive literature!

Eclipse

ECLIPSE AIR BRUSH CO.,

381 PARK AVE.

NEWARK 7, N. J.

For more data circle 303 on Postpaid Card